3 AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND MITIGATION MEASURES

3.6 Public Utilities and Energy

3.6.1 Introduction

Section 3.6, Public Utilities and Energy, of the Los Angeles to Anaheim Project Section (project section) Environmental Impact Report (EIR)/Environmental Impact Statement (EIS) discusses the potential impacts of the No Project Alternative and the High-Speed Rail (HSR) Project Alternatives, otherwise called Shared Passenger Track Alternative A and Shared Passenger Track Alternative B, and describes impact avoidance and minimization features (IAMF) that will avoid, minimize, or reduce these impacts. Mitigation measures are proposed to further reduce, compensate for, or offset impacts of the Shared Passenger Track Alternatives. Section 3.6 also defines the name of resources in the region and describes the affected environment in the resource study areas (RSA).

PURPOSE

Public Utilities and Energy

Utility conflicts are important to identify early in the design process for high-speed rail. The early location of any conflicts may identify opportunities to avoid utility relocations, decrease the public's inconveniences experienced during utility relocations, and decrease project cost.

Energy

A goal of the California High-Speed Rail System is to reduce energy consumption and use alternative sources of energy. This section evaluates energy usage during construction and operation.

Additional details on public utilities and energy are provided in the following appendices in Volume 2 of this Draft EIR/EIS:

- Appendix 2-A, Impact Avoidance and Minimization Features
- Appendix 2-B, Applicable Design Standards
- Appendix 3.1-A, Regional and Local Policy Inventory and Consistency Analysis
- Appendix 3.6-A, Water Use and Energy Analysis Technical Appendix

This section includes detailed analysis of environmental resources, affected environment, environmental consequences, and mitigation measures based on the guidance provided in *Project Environmental Impact Report/Environmental Impact Statement Environmental Methodology Guidelines,* Versions 5.9 and 5.11 as amended (Authority 2017, 2022). Seven other resource sections in this Draft EIR/EIS provide additional information related to public utilities and energy:

- **Section 3.2, Transportation:** Operational impacts related to energy consumption as a result of vehicle miles traveled (VMT) during operation of the Shared Passenger Track Alternatives.
- **Section 3.5, Electromagnetic Fields and Electromagnetic Interference:** Operational impacts related to electromagnetic fields and electromagnetic interference resulting from the Shared Passenger Track Alternatives.
- **Section 3.8, Hydrology and Water Resources:** Construction and operational impacts of the Shared Passenger Track Alternatives related to drainage and stormwater management infrastructure and utility systems along the project section.
- **Section 3.10, Hazardous Materials and Wastes:** Construction and operational impacts of the Shared Passenger Track Alternatives related to hazardous waste generation.
- **Section 3.11, Safety and Security:** Construction and operational impacts of the Shared Passenger Track Alternatives related to safety and construction-related road closures and detours.
- **Section 3.16, Aesthetics and Visual Quality:** Construction and operational impacts of the Shared Passenger Track Alternatives related to aesthetics and visual impacts resulting from updates to electrical infrastructure.

- **Section 3.19, Cumulative Impacts:** Construction and operational impacts of the Shared Passenger Track Alternatives and other past, present, and reasonably foreseeable future projects.

3.6.1.1 Definition of Resources

The following are definitions for the public utilities and energy resources analyzed in this Draft EIR/EIS.

- **Public Utilities:** Public utilities are publicly owned facilities used to provide electric power, natural gas, sewerage, communications, or other services to the community. Public utilities impacts are generally defined under the California Environmental Quality Act (CEQA) as whether the existing environment can accommodate the proposed project based on the capacities of the existing utilities. Impacts are determined by the extent to which the proposed project would exceed the capacities of facilities (e.g., water treatment, wastewater treatment, stormwater drainage, landfill) or exceed the available supply of pertinent resources (i.e., water).
- **Energy:** Energy refers to the power supply for activities within the project footprint. CEQA establishes a goal of conserving energy through wise and efficient use, and places particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy (Public Resources Code Section 21100(b)(3)). Environmental impacts related to energy involve energy requirements and use efficiencies for construction, operation, and maintenance of the project; effects on local and regional energy supplies; effects on peak- and base-period energy demands, compliance with existing energy standards; effects on energy resources; and transportation energy use requirements and use of efficient alternatives.
- **Transportation Energy:** Transportation energy is generally defined in terms of direct and indirect energy. Direct energy involves energy consumed by vehicle propulsion (e.g., automobiles, airplanes, trains). This energy is a function of traffic characteristics such as volume, speed, distance traveled, vehicle mix, and thermal value of the fuel being used.

  Direct energy also includes electrical power requirements, including recoverable energy during operations. Indirect energy consumption involves the nonrecoverable, one-time energy expenditure involved in building the physical infrastructure associated with the HSR Project Alternative, typically through the irreversible burning of hydrocarbons for operating equipment and vehicles in which energy is lost to the environment.

3.6.2 Laws, Regulations, and Orders

This section describes the federal, state, and local laws, regulations, orders, and plans that are relevant to public utilities and energy resources. General National Environmental Policy Act (NEPA) and CEQA requirements for assessment and disclosure of environmental impacts are described in Section 3.1, Introduction, and are therefore not restated in this resource section. NEPA and CEQA requirements specific to the evaluation of public utilities and energy are, however, described in this section.

3.6.2.1 Federal

Federal Railroad Administration, Procedures for Considering Environmental Impacts (64 *Federal Register* 28545)

These Federal Railroad Administration (FRA) procedures (FRA 1999) state that an EIS should consider possible impacts on energy production and consumption, especially those alternatives likely to reduce the use of petroleum or natural gas consistent with the policy outlined in Executive Order 12185. These FRA procedures describe the FRA's process for assessing the environmental impacts of actions and legislation proposed by the agency and for the preparation of associated documents (42 U.S.C. 4321 et seq.).

Section 403(b) of the Power Plant and Industrial Fuel Use Act (U.S. Presidential Executive Order 12185; 44 *Federal Register* 75093; Public Law 95-620)

This section of the Power Plant and Industrial Fuel Use Act and of the U.S. Presidential Executive Order encourages additional conservation of petroleum and natural gas by recipients of federal financial assistance.

Norman Y. Mineta and Special Programs Improvement Act (Public Law 108-426)

This act, established by the U.S. Department of Transportation, Pipeline, and Hazardous Materials Safety Administration, regulates safe movement of hazardous materials to industry and consumers by various modes of transportation, including pipelines. The regulations require pipeline owners and operators to meet specific standards and qualifications, including participating in public safety programs that *notify an operator of proposed demolition, excavation, tunneling, or construction near or affecting a pipeline*. This includes identifying pipelines that may be affected by such activities and identifying hazards that may affect a pipeline. In California, pipeline safety is administered by the Office of the Fire Marshal.

Federal Energy Regulatory Commission

The Federal Energy Regulatory Commission is an independent agency that regulates the interstate transmission of natural gas, oil, and electricity. The Federal Energy Regulatory Commission also regulates natural gas and hydropower projects. As part of that responsibility, the Federal Energy Regulatory Commission regulates the transmission and sale of natural gas for resale in interstate commerce, the transmission of oil by pipeline in interstate commerce, and the transmission and wholesale sales of electricity in interstate commerce. The Federal Energy Regulatory Commission also licenses and inspects private, municipal, and state hydroelectric projects; approves the siting and abandonment of interstate natural gas facilities, including pipeline, storage, and liquefied natural gas facilities; oversees environmental matters related to natural gas and hydroelectricity projects as well as major electricity policy initiatives; and administers accounting and financial reporting regulations and the conduct of regulated companies.

Corporate Average Fuel Economy

Corporate Average Fuel Economy standards are federal regulations that are set to reduce energy consumed by on-road motor vehicles. The National Highway Traffic Safety Administration (NHTSA) regulates the standards, and the U.S. Environmental Protection Agency (USEPA) measures vehicle fuel efficiency. The standards specify minimum fuel consumption efficiency standards for new automobiles sold in the United States. On June 7, 2024, NHTSA announced the final ruling for fuel economy standards. This current ruling establishes that the fuel economy standards must reach an average of approximately 50.4 miles per gallon for passenger cars and light trucks and an average of 2.851 gallons per 100 miles for heavy-duty pickup trucks and vans (NHTSA 2024).

California had originally been granted a waiver of preemption to USEPA regulations to be able to set its own respective and more protective greenhouse gas (GHG) emission standards, which it adopted in 2013 through Phase I of California's Advanced Clean Cars Program. On August 24, 2018, NHTSA and USEPA proposed to amend the fuel efficiency standards for passenger cars and light trucks and establish new standards covering model years 2021 through 2026 by maintaining the current model year 2020 standards through 2026 (Safer Affordable Fuel Efficient Vehicles Rule). On September 19, 2019, USEPA and NHTSA issued a final action on the One National Program Rule, which is considered part 1 of the Safer Affordable Fuel Efficient Vehicles Rule. The One National Program Rule enables USEPA/NHTSA to provide nationwide uniform fuel economy and GHG vehicle standards, specifically by (1) clarifying that federal law preempts state and local tailpipe GHG standards, (2) affirming NHTSA's statutory authority to set nationally applicable fuel economy standards, and (3) withdrawing California's Clean Air Act preemption waiver to set state-specific standards.

USEPA and NHTSA published their decisions to withdraw California's waiver and finalize regulatory text related to the preemption on September 27, 2019 (84 *Federal Register* 51310). USEPA and NHTSA issued final rules to amend and establish national carbon dioxide and fuel economy standards on March 30, 2020 (part 2 of the Safer Affordable Fuel Efficient Vehicles Rule). The revised rule changes the national fuel economy standards for light-duty vehicles from 54.5 miles per gallon to 40.5 miles per gallon in the future. In 2022, USEPA completed reconsideration of its 2019 action withdrawing California's waiver of preemption. That decision rescinded USEPA's 2019 waiver withdrawal (refer to 87 *Federal Register* 14332). As of 2024, California's Advanced Clean Cars II program through the California Air Resources Board (CARB) aims to rapidly scale down emissions from light-duty passenger car, pickup truck, and sport utility vehicle emissions between 2026 and 2035. Advanced Clean Cars II mandates that 100 percent of new vehicle sales be zero-emission vehicle models by 2035. Fuel economy standards set in Advanced Clean Cars II's low-emission vehicle criteria align with the most recent federal NHTSA Corporate Average Fuel Economy standards for fuel economy and emissions requirements to reduce fuel consumption, promote energy independence, and reduce airborne pollutants from vehicles.

Resource Conservation and Recovery Act (42 U.S. Code Section 6901 et seq.)

The federal Resource Conservation and Recovery Act was enacted in 1976 to ensure that solid and hazardous wastes are properly managed, from their generation to ultimate disposal or destruction. Implementation of the Resource Conservation and Recovery Act has largely been delegated to federally approved state waste management programs and, under Subtitle D, further promulgated to local governments for management of planning, regulation, and implementation of nonhazardous solid waste disposal. USEPA retains oversight of state actions under 40 Code of Federal Regulations (CFR) Parts 239 through 259. Where facilities are found to be inadequate, 40 CFR Part 256.42 requires that necessary facilities and practices be developed by the responsible state and local agencies or by the private sector. In California, that responsibility was created under the California Integrated Waste Management Act of 1989 and Assembly Bill (AB) 939.

3.6.2.2 State

Public Utilities Code Sections 1001 through 1013 and California Public Utilities Commission (CPUC) General Order 131-E

CPUC regulates public electric utilities in California. Sections 1001 through 1013 of the Public Utilities Code state that railroad companies operating railroads powered primarily by electric energy or electric companies operating power lines shall not begin construction of electric railroads or power lines without first obtaining a certificate from CPUC specifying that such construction is required for the public's convenience and necessity. General Order 131-E establishes CPUC rules for implementing Public Utilities Code Sections 1001 through 1013 related to the planning and construction of electric generation facilities, transmission/power/distribution line facilities, and substations in California. A permit to build must be obtained from CPUC for facilities between 50 kilovolts (kV) and 200 kV. A certificate of public convenience and necessity must be obtained from CPUC for facilities 200 kV and above. Both the permit to build and certificate of public convenience and necessity are discretionary decisions by CPUC that are subject to CEQA.

Rules for Overhead 25-Kilovolt Alternating Current Railroad Electrification Systems (California Public Utilities Commission General Order 176)

The Rules for Overhead 25-kV Railroad Electrification Systems for a High-Speed Rail System became effective on March 26, 2015. The rules establish uniform safety requirements governing the design, construction, operation, and maintenance of 25-kV alternating current railroad electrification overhead contact systems. The CPUC General Order would apply to the HSR system.

General Order 176 applies to 25-kV alternating current electrification systems built in California and serving an HSR passenger system capable of operating at speeds of 150 miles per hour or

higher, located in dedicated rights-of-way with no public highway-rail at-grade crossings and in which freight operations do not occur. General Order 176 promotes the safety and security of the general public and of persons engaged in the construction, maintenance, and operation of a 25-kV electrified HSR system.

The base standards for design, construction, installation, operation, and maintenance established by General Order 176 require coordination and cooperation of the California High-Speed Rail Authority (Authority) (the entity that owns the HSR system) and other facility owners (e.g., Pacific Gas and Electric Company) so that the facilities of both parties are not prevented from performing as required or intended. General Order 176 does not prevent the Authority from entering into agreements with other facility owners that establish stricter standards than or additional requirements to those specified in these rules.

Designation of Transmission Corridor Zones (California Code of Regulations, Title 20, Sections 2320 through 2340)

The regulation on designation of transmission corridor zones specifies the scope and process required for identification, evaluation, and designation of new transmission corridor zones.

Energy Efficiency Standards (California Code of Regulations, Title 24, Part 6)

The regulation on energy efficiency standards promotes efficient energy use in new buildings built in California. The standards regulate energy consumed for heating, cooling, ventilation, water heating, and lighting. The standards are enforced through the local building permit process.

The California Green Building Standards Code is also under Title 24 of the California Code of Regulations. The California Green Building Standards Code is intended to improve public health, safety, and public welfare through sustainable construction practices. The sustainable practices are applied to planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental quality. The California Green Building Standards Code provides a waste reduction requirement of 65 percent of nonhazardous construction and demolition (C&D) waste.

Renewables Portfolio Standard Program (Senate Bill [SB] 1078)

The Renewables Portfolio Standard Program requires retail sellers of electricity to increase their purchases of electricity generated by renewable sources and establishes a goal of having 20 percent of California's electricity generated by renewable sources by 2017. In 2010, CARB extended this target for renewable energy resource use to 33 percent of total use by 2020 (CARB 2010). Subsequent legislation requires retail sellers and publicly owned utilities to procure 50 percent of their electricity from renewable energy resources by 2030. In 2018, SB 100 (de León, 2018) was signed into law, which again increases the Renewables Portfolio Standard to 60 percent by 2030 and requires all the state's electricity to come from carbon-free resources by 2045. Increasing California's renewable energy supplies will diminish the state's heavy dependence on natural gas as a fuel for electric power generation.

Clean Energy and Pollution Reduction Act (Senate Bill 350)

SB 350 increases California's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030, with interim targets of 40 percent by 2024 and 25 percent by 2027. This objective will increase the use of Renewables Portfolio Standard eligible resources, including solar, wind, biomass, geothermal and others.

100 Percent Clean Energy Act (Senate Bill 100)

SB 100, the 100 Percent Clean Energy Act of 2018, makes it a policy of the state that eligible renewable energy resources and zero-carbon resources supply 100 percent of retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve state agencies by December 31, 2045.

Integrated Waste Management Act (Assembly Bill 939)

In response to the Resource Conservation and Recovery Act, the California Integrated Waste Management Act of 1989 was enacted by AB 939. It requires cities and counties to prepare an integrated waste management plan, including a countywide siting element for each jurisdiction. Per Public Resources Code Sections 41700 through 41721.5, the countywide siting element provides an estimate of the total permitted disposal capacity needed for a 15-year period, or whenever additional capacity is necessary. The countywide siting elements in California must be updated by each operator and permitted by the Department of Resources Recycling and Recovery, which is within the Natural Resources Agency, every 5 years. AB 939 mandated that local jurisdictions meet solid waste diversion goals of 50 percent by 2000.

Sustainable Communities and Climate Protection Act of 2008 (Senate Bill 375, Chapter 728, Statutes of 2008)

Adopted in September 2008, SB 375 provides a new planning process to coordinate community development and land use planning with regional transportation plans in an effort to reduce sprawling land use patterns and dependence on private vehicles and thereby reduce VMT and GHG emissions associated with VMT. SB 375 is one major tool being used to meet the goals in the Global Warming Solutions Act (AB 32). Under SB 375, CARB sets GHG emission reduction targets for 2020 and 2035 for the metropolitan planning organizations in the state. Each metropolitan planning organization must then prepare a “sustainable communities strategy” that meets the GHG emission reduction targets set by CARB. Once adopted, the sustainable communities strategy will be incorporated into the region’s regional transportation plans.

Local Government Construction and Demolition Guide (Senate Bill 1374)

SB 1374 seeks to assist jurisdictions with diverting C&D material, with a primary focus on the California Department of Resources Recycling and Recovery, by developing and adopting a model C&D diversion ordinance for voluntary use by California jurisdictions.

Protection of Underground Infrastructure (California Government Code, Section 4216)

This code requires an excavator to contact a regional notification center (i.e., underground service alert) at least 2 days before excavation of subsurface installations. The underground service alert will then notify the utilities that may have buried lines within 1,000 feet of the excavation. Representatives of the utilities are required to mark the specific location of their facilities in the work area prior to the start of excavation. The construction contractor is required to probe and expose the underground facilities by hand prior to using power equipment.

Pavley Rule (Assembly Bill 1493)

In California, the Pavley regulations for automobile efficiency (AB 1493), with the granting of the federal waiver on June 30, 2009, are expected to reduce GHG emissions from California passenger vehicles by about 22 percent in 2012 and about 30 percent in 2016, while improving fuel efficiency and reducing motorists’ costs.

In January 2012, CARB approved a vehicle emissions control program for model years 2017 through 2025. CARB’s new approach combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of standards and includes efforts to increase the numbers of plug-in hybrids and zero-emissions vehicles in California.

California Public Utilities Commission General Order 95

The CPUC General Order, Rule for Overhead Electric Line Construction, formulates uniform requirements for overhead electrical line construction, including overhead catenary construction, the application of which will ensure adequate service and safety to persons engaged in the construction, maintenance, operation, or use of overhead electrical lines and to the public in general.

Water Conservation Act of 2009 (Senate Bill X7-7)

The Water Conservation Act of 2009 (SB X7-7, Chapter 4, Statutes of 2009, Seventh Extraordinary Session) requires urban and agricultural water suppliers to increase water use efficiency. The urban water use goal within the state is to achieve a 20 percent reduction in per-capita water use by December 31, 2020. Agricultural water suppliers will prepare and adopt agricultural water management plans by December 31, 2012, and update those plans by December 31, 2015, and every 5 years thereafter. Effective 2013, agricultural water suppliers who do not meet the water management planning requirements established by this bill are not eligible for state water grants or loans.

Assembly Bill 1668 and Senate Bill 606

AB 1668 and SB 606 build on former Governor Edmund G. Brown's ongoing efforts to make water conservation a way of life in California and create a new foundation for long-term improvements in water conservation and drought planning. SB 606 and AB 1668 establish guidelines for efficient water use and a framework for the implementation and oversight of the new standards, which must be in place by 2022. The two bills' provisions include:

- Establishing water use objectives and long-term standards for efficient water use that apply to urban retail water suppliers, composed of indoor residential water use; outdoor residential water use; commercial, industrial, and institutional irrigation with dedicated meters; water loss; and other unique local uses
- Providing incentives for water suppliers to recycle water
- Identifying small water suppliers and rural communities that may be at risk of drought and water shortage vulnerability and providing recommendations for drought planning
- Requiring both urban and agricultural water suppliers to set annual water budgets and prepare for drought

Clean Energy and Pollution Reduction Act (SB 350)

In October 2015, the Clean Energy and Pollution Reduction Act (SB 350) was signed into law, establishing new clean energy, clean air, and GHG emissions reduction goals for 2030 and beyond. SB 350 is considered the most significant climate and clean energy legislation since the passage of the California Global Warming Solutions Act (AB 32) that set the statewide goal of reducing GHG emissions to 1990 levels by 2020. Building off AB 32, SB 350 established California's 2030 GHG emissions reduction target of 40 percent below 1990 levels. To achieve this goal, SB 350 sets ambitious 2030 targets for energy efficiency and renewable electricity, among other actions aimed at reducing GHG emissions. SB 350 will greatly enhance the state's ability to meet its long-term climate goal of reducing GHG emissions to 80 percent below 1990 levels by 2050.

Urban Water Management Planning Act (California Water Code, Sections 10610–10656)

The Urban Water Management Planning Act (California Water Code, Division 6, Part 2.6, Sections 10610–10656) requires the preparation of an urban water management plan every 5 years by water suppliers that provide over 3,000 acre-feet per year (AFY) of water or serve water for municipal purposes either directly or indirectly to 3,000 or more customers. The Metropolitan Water District of Southern California, Los Angeles County Waterworks District, City of Los Angeles Department of Water and Power (LADWP), Crescenta Valley Water District, Irvine Ranch Water District, and water suppliers in urban areas in the cities of Los Angeles, Vernon, Commerce, Bell, Montebello, Pico Rivera, Santa Fe Springs, Norwalk, La Mirada, Buena Park, Fullerton, and Anaheim are required to prepare water management plans under the Urban Water Management Planning Act.

Sustainable Groundwater Management Act

In September 2014, Governor Edmund G. Brown enacted the Sustainable Groundwater Management Act, which empowers local agencies to adopt groundwater management plans that are tailored to the resources and to regional economic and environmental needs.

Waste Management for State Agencies (Assembly Bill 75)

This California state law, adopted in 1999, requires each state agency and each large state facility, as defined, to divert at least 50 percent of the waste it generates. Agencies must also designate at least one solid waste reduction and recycling coordinator to oversee the implementation of waste management plans and recycling/reuse programs and submit an annual report, for the prior calendar year, including disposal amounts and explanation of diversion activities. Reports are due by May 1 of each year. The business services manager at the Authority is the designated coordinator.

California Regional Water Quality Management Plans

Division Seven (Water Quality) of the State Water Code establishes the responsibilities and authorities of the nine Regional Water Quality Control Boards (RWQCB) and the State Water Resources Control Board. The Porter-Cologne Water Quality Control Act names these boards "the principal State agencies with primary responsibility for the coordination and control of water quality" (Section 13001). Each Regional Board is directed to "formulate and adopt water quality control plans for all areas within the region." The RWQCBs implement the basin plans by issuing and enforcing waste discharge requirements to individuals, communities, or businesses whose waste discharges can affect water quality. These requirements can be either State Waste Discharge Requirements for discharges to land, or federally delegated National Pollutant Discharge Elimination System permits for discharges to surface water. Methods of treatment are not specified. When such discharges occur, they are managed so that (1) they meet these requirements; (2) water quality objectives are met; and (3) beneficial uses are protected, and water quality is controlled.

3.6.2.3 Regional and Local

This section discusses relevant regional and local programs, policies, regulations, and permitting requirements. The project section would primarily be within Los Angeles and Orange Counties, and the cities of Los Angeles, Vernon, Commerce, Bell, Montebello, Pico Rivera, Santa Fe Springs, Norwalk, La Mirada, Buena Park, Fullerton, and Anaheim. The city of Orange is also within the RSA. Table 3.6-1 lists local plans and policies that were identified and considered for analysis.

Table 3.6-1 Regional and Local Plans and Policies

Policy Title	Summary
Southern California	
SCAG 2024–2050 Connect SoCal Regional Transportation Plan/ Sustainable Communities Strategy (2024)	The SCAG RTP/SCS is a long-range metropolitan transportation plan that is developed and updated by SCAG every 4 years. The SCAG 2024 RTP/SCS, also known as Connect SoCal, outlines a comprehensive vision for transportation and land use planning in Southern California. Policies relevant to public utilities and energy include: ▪ Policy 48. Promote sustainable development and best practices that enhance resource conservation, reduce resource consumption and promote resilience ▪ Policy 51. Reduce hazardous air pollutants and greenhouse gas emissions and improve air quality throughout the region through planning and implementation efforts ▪ Policy 56. Consider the full environmental life cycle of clean transportation technologies, including upstream production and end of life as an important part of meeting SCAG's objectives in economic development and recovery, resilience planning and achievement of equity ▪ Policy 67. Promote sustainable water use planning, practices and storage that improve regional water security and resilience in a drier environment ▪ Policy 69. Leverage and prioritize investments, particularly where there are mutual co-benefits to both freight and passenger/commuter rail
Los Angeles County	
Los Angeles County 2035 General Plan (2025)	The County of Los Angeles adopted the *Los Angeles County General Plan 2035* on October 6, 2015 and revised it in 2025. The general plan includes the following policies: ▪ Public Services and Facilities Element, Policy PS/F 1.1: Discourage development in areas without adequate public services and facilities. ▪ Public Services and Facilities Element, Policy PS/F 1.2: Ensure that adequate services and facilities are provided in conjunction with development through phasing or other mechanisms. ▪ Public Services and Facilities Element, Policy PS/F 1.3: Ensure coordinated service provision through collaboration between County departments and service providers. ▪ Public Services and Facilities Element, Policy PS/F 1.4: Ensure the adequate maintenance of infrastructure. ▪ Public Services and Facilities Element, Policy PS/F 1.5: Focus infrastructure investment, maintenance, and expansion efforts where the General Plan encourages development. ▪ Public Services and Facilities Element, Policy PS/F 1.6: Support multi-faceted public facility expansion efforts, such as substations, mobile units, and satellite offices. ▪ Public Services and Facilities Element, Policy PS/F 1.7: Consider resource preservation in the planning of public facilities. ▪ Public Services and Facilities Element, Policy PS/F 6.1: Ensure efficient and cost-effective utilities that serve existing and future needs. ▪ Public Services and Facilities Element, Policy PS/F 6.4: Protect and enhance utility facilities to maintain the safety, reliability, integrity, and security of utility services. ▪ Public Services and Facilities Element, Policy PS/F 6.5: Encourage the use of renewable energy sources in utility and telecommunications networks. ▪ Public Services and Facilities Element, Policy PS/F 6.8: Encourage projects that incorporate on-site renewable energy systems. ▪ Conservation Element, Policy C/NR 12.1: Encourage the production and use of renewable energy resources.

Policy Title	Summary
Water Quality Control Plan for the Los Angeles Region (Basin Plan) (2024)	The Los Angeles Regional Water Quality Control Board manages stormwater drainage into unincorporated areas of the county. The Basin Plan, originally adopted in 2014 and most recently amended in February of 2024, is a resource for the Los Angeles Regional Water Quality Control Board to provide for the continuity of programs that fulfill requirements of the State Water Resources Control Board General Permit and Section 402(p) of the Clean Water Act.
2020 Urban Water Management Plan for District 40 (2021)	The County of Los Angeles adopted the 2020 UWMP for District 40 on October 2021. The plan includes the following goal: ▪ To provide reliable high-quality supplies from the Metropolitan Water District of Southern California and other sources to meet present and future needs at an equitable and economical cost and promote water use efficiency for all of Los Angeles County.
City of Los Angeles	
City of Los Angeles General Plan, Framework Element (2024)	The City of Los Angeles adopted the *City of Los Angeles General Plan* on December 11, 1996, and last amended it in 2024. The general plan's Framework Element includes the following goals: ▪ Objective 9.5: Ensure that all properties are protected from flood hazards in accordance with applicable standards and that existing drainage systems are adequately maintained. ▪ Objective 9.9: Manage and expand the City's water resources, storage facilities, and water lines to accommodate projected population increases and new or expanded industries and businesses. ▪ Objective 9.10: Ensure that water supply, storage, and delivery systems are adequate to support planned development. ▪ Objective 9.27: Continue to ensure that all electric power customers will receive a dependable supply of electricity at competitive rates. ▪ Objective 9.28: Provide adequate power supply transmission and distribution facilities to accommodate existing uses and projected growth.

Policy Title	Summary
City of Vernon	
City of Vernon General Plan (2023)	The City of Vernon adopted the *City of Vernon General Plan* on December 3, 2007; it was most recently amended on July 18, 2023. The general plan includes the following goals and policies: ▪ Circulation and Infrastructure Element, Goal CI-6: Improve the City's capability to generate and supply electric power to achieve energy self-sufficiency. ▪ Circulation and Infrastructure Element, Policy CI-6.1: Expand, operate, and maintain an electrical utility system in an effort to provide an adequate level of service to businesses and other uses in the city. ▪ Circulation and Infrastructure Element, Policy CI-6.2: Improve the electrical utility system in an effort to allow the City to meet any changes in demand over time. ▪ Circulation and Infrastructure Element, Policy CI-6.3: Cooperate and/or participate with other agencies or parties in the expansion or development of power generation. ▪ Circulation and Infrastructure Element, Policy CI-6.4: Evaluate the impact of all new development on the electrical energy system and require that the cost of upgrading existing facilities is paid by the development that necessitates the upgrade. ▪ Resources Element, Goal R1: Conserve and protect the region's water and energy resources. ▪ Resources Element, Policy R-1.1: Encourage the water conservation and the use of recycled water in new developments and by all industries. ▪ Resources Element, Policy R-1.2: Support the use of energy-saving designs and equipment in all new development and reconstruction projects. ▪ Resources Element, Policy R-1.3: Seek and pursue the most practicable and cost-effective means of implementing National Pollutant Discharge Elimination System requirements.
City of Pico Rivera	
City of Pico Rivera General Plan (2014)	Pico Rivera published the draft amendment to the *City of Pico Rivera General Plan* on September 15, 2014. The general plan includes the following policies: ▪ Energy Conservation, Policy 8.1-5: Promote energy conservation through improving water efficiency and water conservation in existing city buildings and new development projects and providing for renewable energy generation at city facilities, with the aim of meeting 5 percent of city facilities' energy needs with renewable energy generation by 2030. ▪ Energy Efficiency, Policy 8.3-7: Encourage all new development to implement additional energy efficient measures beyond what is required by state law to exceed minimum energy efficiency requirements. ▪ National Pollutant Discharge Elimination System, Policy 8.4-5: Regulate construction and operational activities to incorporate stormwater protection measures and best management practices in accordance with the City's NPDES permit.

Policy Title	Summary
City of Norwalk	
2020 Urban Water Management Plan for the City of Norwalk (2021)	The City of Norwalk published the UWMP in June 2021. The plan includes the following goal: ▪ The City must showcase that it meets the state's water reduction goal. The City may choose to comply with SBx7-7 individually or as a region in collaboration with other retail water suppliers in Los Angeles County. Under the regional compliance option, the City is still required to report its individual water use targets. The City is required to be in compliance with SBx7-7 either individually or as part of the alliance, or demonstrate they have a plan or have secured funding to be in compliance, in order to be eligible for water-related state grants and loans.
Orange County	
County of Orange General Plan (2025)	The County of Orange adopted the *County of Orange General Plan* in 2012 and revised it in 2025. The general plan includes the following goals, objectives, and policies: ▪ Public Services and Facilities Element, *General*, Goal 2: Encourage the funding and development of public services and facilities to meet the County's existing and future demand. ▪ Public Services and Facilities Element, *General*, Objective 2.2: To develop adequate and dependable public services and facilities that support existing and future development, as defined by the General Plan. ▪ Public Services and Facilities Element, *General*, Policy 1: To implement public facilities in a manner that supports the implementation of the overall land use development policies and the needs of county residents and is consistent with the funding capabilities of the County. ▪ Public Services and Facilities Element, *Wastewater System*, Policy 1: To protect quality in both delivery systems and groundwater basins through effective wastewater system management. ▪ Resources Element, *Energy Resources Component*, Policy 3: To encourage and actively support the utilization of energy conservation measures in all new and existing structures in the County. ▪ Resources Element, *Energy Resources Component*, Policy 6: To encourage the use of alternative energy systems and, to the extent feasible, remove the regulatory barriers to their implementation. ▪ Resources Element, *Water Resources Component*, Policy 1: To ensure the adequacy of water supply necessary to serve existing and future development, as defined by the General Plan. ▪ Resources Element, *Water Resources Component*, Policy 5: Encourage an integrated water resources approach for stormwater management that considers water supply, water quality, flood control, open space, and native habitats. Promote coordination between the County, cities, and other stakeholders in the identification and implementation of watershed protection and Low Impact Development (LID) principles.
Urban Water Management Plan for the Municipal Water District of Orange County (2021)	The County of Orange adopted the UWMP in June 2021. The plan includes the following goal: ▪ To provide reliable high-quality supplies from the Metropolitan Water District of Southern California and other sources to meet present and future needs at an equitable and economical cost and promote water use efficiency for all of Orange County. Serves as a foundational document and source of information for a Water Supply Assessment (Water Code Section 10613) and a Written Verification of Water Supply (Water Code Section 66473.7).

Policy Title	Summary
City of Buena Park	
Buena Park 2035 General Plan (2022)	Buena Park adopted the *Buena Park 2035 General Plan* on December 7, 2010, and last updated it in 2022. The general plan includes the following goals and policies: ▪ Community Facilities Element, Goal CF-5: Adequate wastewater facilities to serve existing and new development in the city. ▪ Community Facilities Element, Policy CF-5.2: Continue to coordinate with the Orange County Sanitation District to ensure existing wastewater systems are maintained and upgraded and new wastewater facilities are constructed, as needed. ▪ Community Facilities Element, Policy CF-5.4: Ensure that sewer improvements required for new development or redevelopment are installed prior to or concurrently with development. ▪ Community Facilities Element, Policy CF-5.6: Ensure that infrastructure capacities are planned to serve future development. ▪ Conservation and Sustainability Element, Policy CS-13.1: Consider adopting renewable energy building standards. The standards would incorporate technically and financially feasible renewable energy requirements into development and building standards. ▪ Conservation and Sustainability Element, Policy CS-13.4: Encourage new developments, redevelopments, and retrofit buildings to have solar energy panels, co-generation energy systems, and/or other energy efficient systems installed to reduce the unnecessary consumption of energy.
City of Fullerton	
Urban Water Management Plan for the City of Fullerton (2021)	Fullerton published the UWMP in June 2021. The plan includes the following goals: ▪ The City must showcase that it meets the state's water reduction goal. The City may choose to comply with SBx7-7 individually or as a region in collaboration with other retail water suppliers in Orange County. Under the regional compliance option, the City is still required to report its individual water use targets. The City is required to be in compliance with SBx7-7 either individually or as part of the alliance, or demonstrate they have a plan or have secured funding to be in compliance, in order to be eligible for water related state grants and loans.
City of Anaheim	
City of Anaheim General Plan, Public Services and Facilities Element (2025)	Anaheim adopted the *City of Anaheim General Plan* on May 25, 2004, and revised the Public Services and Facilities Element on November 25, 2010. The general plan, last updated in 2025, includes the following goals and policies: ▪ Goal 3.1: Generate electricity in a manner that is reliable, cost-effective, and sustainable. – Policy 1: Coordinate with Southern California Edison and other suppliers regarding electricity supply and distribution to provide a continual source of reliable and efficient energy. – Policy 2: Ensure that adequate electricity capacity exists for planned development. – Policy 3: Encourage the development and use of renewable energy resources. ▪ Goal 5.1: Provide a safe and effective sewer system that meets the needs of the city's residents, businesses, and visitors. – Policy 1: Ensure that appropriate sewer system mitigation measures are identified and implemented in conjunction with new development based on the recommendations of prior sewer studies and/or future sewer studies that may be required by the City Engineer.

Policy Title	Summary
Urban Water Management Plan for the City of Anaheim (2021)	Anaheim published the UWMP in June 2021. The general plan includes the following goal: ▪ The City must showcase that it meets the state's water reduction goal. The City may choose to comply with SBx7-7 individually or as a region in collaboration with other retail water suppliers in Orange County. Under the regional compliance option, the City is still required to report its individual water use targets. The City is required to be in compliance with SBx7-7 either individually or as part of the alliance, or demonstrate they have a plan or have secured funding to be in compliance, in order to be eligible for water related state grants and loans.

Sources: City of Anaheim 2021, 2025; City of Buena Park 2022; City of Fullerton 2021; City of Los Angeles 2024; City of Norwalk 2021; City of Pico Rivera 2014; City of Vernon 2023; County of Los Angeles 2021, 2025; County of Orange 2025; Los Angeles RWQCB 2024; SCAG 2024; MWDOC 2021
NPDES = National Pollutant Discharge Elimination System; SCAG = Southern California Association of Governments; UWMP = Urban Water Management Plan

3.6.3 Consistency with Plans and Laws

As indicated in Section 3.1.5.3, Consistency with Plans and Laws, CEQA and NEPA require a discussion of inconsistencies or conflicts between a proposed undertaking and federal, state, regional, or local plans and laws. CEQA and FRA NEPA implementing procedures require the discussion of any inconsistency or conflict between a proposed action and federal, state, regional, or local plans and laws. Where inconsistencies or conflicts exist, the Authority must provide a description of the extent of reconciliation and the reason for proceeding if full reconciliation is not feasible under NEPA (64 *Federal Register* 28545, 14(n)(15)) and must discuss the inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans under CEQA (State CEQA Guidelines Section 15125(d)).

Several federal and state laws and implementing regulations, such as those listed in Section 3.6.2.1, Federal, and Section 3.6.2.2, State, pertain to public utilities and energy. Pursuant to U.S. Code Title 23 Section 327, under the NEPA Memorandum of Understanding between the FRA and the State of California, effective July 22, 2024, the Authority is the federal lead agency for environmental reviews and approvals for all Authority Phase 1 and Phase 2 California HSR System projects.

The Authority is a state agency and is therefore not required to comply with local land use and zoning regulations; however, it has endeavored to design and build the HSR project so that it is consistent with land use and zoning regulations. The Shared Passenger Track Alternatives would be consistent with all regional and local policies related to public utilities and energy resources.

Refer to Appendix 3.1-A for a complete consistency analysis of local plans and policies.

3.6.4 Methods for Evaluating Impacts

The evaluation of impacts related to public utilities and energy resources is a requirement of NEPA and CEQA. The following sections summarize the RSAs and summarize the methods used to analyze impacts on public utilities and energy resources. As summarized in Section 3.6.1, Introduction, several other sections provide additional information related to public utilities and energy.

3.6.4.1 Definition of Resource Study Areas

As defined in Section 3.1.5.4, Methods for Evaluating Impacts, RSAs are the geographic boundaries in which the Authority conducted environmental investigations specific to each resource topic. The Shared Passenger Track Alternatives have two RSAs: one for public utilities and one for energy resources. The RSA for impacts on public utilities and the RSA for impacts on energy resources encompass the infrastructure and service areas of public utilities and energy sources, respectively, that construction and operation of the project could directly and indirectly affect. The RSA for direct impacts includes the entire project footprint on or across public utilities

and energy infrastructure, including surface, subsurface, and overhead utilities. The RSA for indirect impacts includes the area that extends beyond the project footprint, including areas where utility relocations, use of non-HSR utility and energy resources and facilities necessary for project construction and operation, and construction of electrical interconnections with local utilities would occur. Table 3.6-2 provides a general definition and boundary description for each RSA related to public utilities and energy within the project section. Figure 3.6-1 presents the public utilities and energy direct impacts RSA.

Table 3.6-2 Definition of Public Utilities and Energy Resource Study Areas

General Definitions	Resource Study Area Boundary Definition
Public Utilities	
Direct impacts	The project footprint on or across public utilities infrastructure (which includes aquifers and surface, subsurface, and overhead utilities) crossing the area that would be disturbed temporarily during construction, or the area permanently utilized during operation[1]
Indirect impacts	The area that would extend beyond the project footprint, such as impacts on capacity of existing providers to serve other use of non-HSR resources and facilities necessary for project construction and operation, as well as electrical interconnections with local utilities
Energy	
Direct impacts	The entire project footprint, including easements for interconnection to local electrical substations
Indirect impacts	Electricity generation and transmission across the entire state of California, as well as western states that produce energy exported to California[2]

[1] The project footprint includes all areas required to build, operate, and maintain all permanent HSR facilities, including permanent right-of-way, permanent utility and access easements, and temporary construction easements.
[2] The HSR system would obtain electricity from the statewide grid. Therefore, this analysis cannot apportion the use of particular generation facilities to a particular RSA.
HSR = high-speed rail; RSA = resource study area

Source: ESRI 2024

Figure 3.6-1 Public Utilities and Energy Direct Impacts Resource Study Area

3.6.4.2 Impact Avoidance and Minimization Features

The Shared Passenger Track Alternatives incorporate standardized HSR features to avoid and minimize impacts. These features are referred to as IAMFs and are considered to be part of the project. The Authority will incorporate IAMFs during final project design and construction; therefore, the analysis of impacts of the Shared Passenger Alternatives in this section factors in all applicable IAMFs. Appendix 2-A provides a detailed description of IAMFs that are included as part of the project design. IAMFs applicable to public utilities and energy include:

- **PUE-IAMF#1: Design Measures**, specifies that the Authority, or Authority-designated contractor, will incorporate utilities and design elements that minimize electricity consumption.
- **PUE-IAMF#3, Public Notifications**, requires that the contractor notify the public of utility interruptions no less than 7 days prior to outage, and that construction be coordinated to avoid interruptions of utility service to hospitals and other critical users.
- **PUE-IAMF#4, Utilities and Energy**, requires preparation of a technical memorandum documenting how construction activities will be coordinated with utility service providers to minimize or avoid planned and accidental temporary interruptions.

Because public utilities and energy overlap with several other resource sections, there are several additional IAMFs that will also be incorporated to account for intersectional impact avoidance. Other resource IAMFs applicable to impacts on public utilities and energy include:

- **GEO-IAMF#3:** Gas Monitoring
- **HMW-IAMF#4:** Known, Suspected, and Unanticipated Environmental Contamination
- **HMW-IAMF#7:** Storage and Transport of Materials
- **HMW-IAMF#9:** Environmental Management System
- **HMW-IAMF#10:** Hazardous Materials Plans
- **HYD-IAMF#1:** Stormwater Management
- **HYD-IAMF#2:** Flood Protection
- **HYD-IAMF#3:** Prepare and Implement a Construction Stormwater Pollution Prevention Plan
- **HYD-IAMF#4:** Prepare and Implement an Industrial Stormwater Pollution Prevention Plan

In Section 3.6.6, Environmental Consequences, each impact narrative describes how these project features are applicable and, where appropriate, effective at avoiding or minimizing potential impacts to less-than-significant levels under CEQA.

3.6.4.3 Methods for Impact Analysis

This section describes the sources and methods the Authority used to analyze potential impacts on public utilities and energy from implementation of the Shared Passenger Track Alternatives. These methods apply to both NEPA and CEQA analyses unless otherwise indicated. Refer to Section 3.1.5.4 for a description of the general framework for evaluating impacts under NEPA and CEQA. Laws, regulations, and orders (refer to Section 3.6.2, Laws, Regulations, and Orders) that regulate hydrology and water resources were also considered in the evaluation of impacts on public utilities and energy resources. For project construction and operational actions that would result in impacts, feasible mitigation measures are identified to avoid or minimize impacts or to compensate for impacts.

The analysis focuses on the direct impacts of the Shared Passenger Track Alternatives on public utilities and energy. Public utilities and energy impacts could result from the following:

- Increases in the use of utilities and service systems
- Physical conflicts with utility infrastructure within the project footprint
- Service interruptions

- Violations of regulatory standards
- Exceedances of existing facility capacities (e.g., wastewater treatment plants or landfills)
- Interruptions that would lead to a loss of revenue (e.g., commercial or industrial operations)

These effects can be assessed locally for physical infrastructure conflicts, but the area served by utilities and energy providers needs to be reviewed as part of the RSA to fully understand the existing capacity and reserves of utility resources and energy reserves. These capacities and reserves are compared against the demands of the Shared Passenger Track Alternatives to determine the effect type and severity.

Because this analysis also considered the potential effects of the Shared Passenger Track Alternatives on electricity generation and transmission lines throughout the entire state of California (and western states that produce energy that is exported to California), the analysis of energy impacts cannot be based on a particular regional study area or the use of particular generation facilities. The analysis of impacts on public utilities and energy is categorized in terms of temporary, intermittent, or permanent impacts. Analysis of impacts on public utilities and energy during construction of the project is generally categorized as temporary, intermittent, or permanent. Impacts on public utilities and energy during operation of the project are categorized as permanent. Environmental consequences related to public utilities and energy are described in detail in Section 3.6.6.

Public Utilities

An evaluation of potential impacts the Shared Passenger Track Alternatives could have on public utilities includes the following:

- Analysis used data provided by local utilities service providers within the RSA to describe the type, size, and location of existing and proposed utility infrastructure (Authority 2015). Analysis considered all utilities but focused on high-risk, major utilities, and other significant utility-related facilities. For purposes of this analysis, utilities are defined in the *California High-Speed Rail Los Angeles to Anaheim Draft Utility Report of the Los Angeles to Anaheim Draft Preliminary Engineering for Project Definition (PEPD) Design Submittal Volume 4* (Authority 2025b) and include the following:
  - High-risk utilities, defined as existing facilities that transport the following materials:
    - Petroleum products
    - Oxygen
    - Chlorine
    - Toxic or flammable gases or liquids
    - Natural gas pipelines of any size
    - Underground electric supply lines, conductors, or cables having a potential to ground of more than 300 volts, either directly buried or in duct or conduit, that do not have concentric grounded or other effectively grounded metal shields or sheaths
    - Water in pressured pipelines (potable water, irrigation water, industrial water)
    - Sanitary sewer force mains
  - Major utilities are defined as any subsurface, aboveground, or overhead utility defined as electric transmission infrastructure:
    - Overhead electric transmission lines (69 kV and larger)
  - Low-risk utilities include the following:
    - Low-voltage distribution lines
    - Fiber-optic communication lines

  - Sanitary sewer lines
  - Drainage facilities
  - Storm drain lines

- The Authority calculated estimates for water demand, wastewater generation, stormwater volumes, and waste removal services for HSR stations using typical ratios, such as gallons per minute, water demand per acre, and ridership and employment projections. The analysis compares these estimated quantities with anticipated supply and capacity, as reported by the service providers in the RSA.
- The Authority's estimates of proposed water use for construction of the Shared Passenger Track Alternatives are based on an estimated 5-year time period in which earthmoving and construction activities that require water use would occur within a longer overall construction period (estimated to be 7 years total). Estimates of existing water use were generated by applying region-specific water use rates for the known land uses in the project sections (refer to Section 3.13, Station Planning, Land Use, and Development). Wastewater generation for station areas and the light maintenance facility (LMF) locations would be approximately 50 percent of total water demand during operation. Water demand estimates are presented in Appendix 3.6-A.
- Estimates of waste generated by C&D activities are based on estimates provided by project engineers using the existing character of the affected environment and the requirements of various project attributes. Operational waste generation estimates are based on anticipated ridership, the number of employees, station facilities, and waste generation and recycling requirements in California.

Energy

The Shared Passenger Track Alternatives would obtain electricity from the statewide electricity grid. Impacts on electrical production that may result from the Shared Passenger Track Alternatives would affect statewide electricity reserves and, to a lesser degree, transmission capacity. To identify the projected energy demand of the project section, the estimated energy impact for Phase 1 of the HSR system was prorated, based on the proportion of the length of HSR guideway within the project section. Phase 1 of the HSR system would be approximately 520 miles long. The length of the project section is approximately 30 miles, or 5.6 percent of the length of the Phase 1 HSR system; therefore, the project section would consume approximately 5.6 percent of the electrical requirements of the Phase 1 HSR system.

Energy Measurement

Energy is commonly measured in terms of British thermal units and is defined as the amount of heat required to raise the temperature of 1 pound of water by 1 degree Fahrenheit. For transportation projects, energy usage is influenced predominantly by the amount of fuel used. The average British thermal unit content of fuel is the heat value (or energy content) per quantity of fuel, as determined from tests of fuel samples. A gallon of gasoline produces approximately 114,000 British thermal units (USEPA 2010); however, the British thermal unit value of gasoline varies from season to season and from batch to batch.

In calculating estimated energy savings for the Shared Passenger Track Alternatives, probabilistic estimates were made for if and when the entire HSR system is to achieve its ridership programs by 2040. *Probabilistic* is defined by the numerous possible ridership outcomes, each having varying degrees of certainty or uncertainty of occurring. Additional information describing medium and high ridership probability scenarios can be found in Section 2.6, Ridership Forecasts, and Section 3.1.

Direct Energy Consumption

Direct energy consumption involves all energy consumed by vehicle propulsion (e.g., automobiles and airplanes). This energy is a function of traffic characteristics such as volume, speed, distance traveled, vehicle mix, and the thermal value of the fuel being used. This energy also includes the electrical power requirements of the Shared Passenger Track Alternatives, including recoverable energy during HSR train braking. The electrical

demands of propulsion of the trains, stations, storage depots, and maintenance facilities were calculated as part of the project design. Direct energy impacts caused by the Shared Passenger Track Alternatives would include the additional consumption of electricity required to power the HSR system.

Analysts estimated the energy use based on the ridership estimates and train operating characteristics as presented in the Authority's 2023 Project Update Report (Authority 2023a). Energy rates were determined through the use of carbon balance equations as recommended by CARB.

Refer to Appendix 1-A, Changes in Project Benefits and Impacts, for more information regarding ridership and VMT reduction assumptions that were used for the energy use calculations, and differences with information presented in the 2024 Business Plan.

Petroleum consumption rates for vehicle travel were derived from the travel demand forecast prepared by the Authority for the Shared Passenger Track Alternatives and growth projections performed by the California Energy Commission (CEC) (CEC 2023c). Current electricity consumption rates from the CEC are compared with the projected energy consumption of the HSR system.

Indirect Energy Consumption

Indirect energy consumption involves the nonrecoverable one-time energy expenditure required to build the physical infrastructure associated with the project section. Construction energy information for comparable HSR systems is not readily available; therefore, construction energy consumption factors identified for the proposed HSR system were derived from data gathered for typical heavy-rail systems and the San Francisco Bay Area Rapid Transit District heavy-rail commuter system. The data were used to estimate the projected construction energy consumption for the Shared Passenger Track Alternatives and are presented in Section 3.6.5, Affected Environment.

The construction energy payback period is the number of years required to pay back the energy used in construction of the Shared Passenger Track Alternatives with operational energy consumption savings of the Shared Passenger Track Alternatives. The net amount of energy savings from operations of the Shared Passenger Track Alternatives was determined by subtracting the increase in electrical energy required to operate the Shared Passenger Track Alternatives from the energy savings from reduction of VMT in Los Angeles and Orange Counties. Estimates are conservative and do not account for reduction in airplane travel in Southern California. Calculations assume that the amount of energy saved in the study years (2024 and 2040) would remain constant throughout the payback period.

3.6.4.4 Method for Evaluating Impacts Under NEPA

NEPA implementing procedures, regulations, and guidance provide the basis for evaluating project effects (as described in Section 3.1.1.). The criteria of context and intensity are considered together when determining the severity of changes introduced by the project.

- **Context:** For this analysis, the *context* comprises the public utilities and energy facilities that would serve the project or be affected by project operations and includes the federal, state, and local laws, regulations, orders, or plans that govern the relevant public utilities and energy infrastructure.
- **Intensity:** For this analysis, *intensity* is determined by assessing the ways and duration (temporary, permanent, or intermittent) in which the project would affect demand on public utility services and energy, create uncertainty or risk to normal utility operations, or conflict with any federal, state, or local law imposed for environmental protection.

3.6.4.5 Method for Determining Significance Under CEQA

CEQA requires that an EIR identify the significant environmental impacts of a project (State CEQA Guidelines Section 15126). One of the primary differences between NEPA and CEQA is

that CEQA requires a significance determination for each impact using a threshold-based analysis. Under CEQA, significant impacts are determined by evaluating whether project impacts would exceed the significance threshold established for the resource (Section 3.1.5.4). The Authority is using the thresholds described in the following sections to determine if a significant impact on public utility and energy resources would occur as a result of the Shared Passenger Track Alternatives.

Public Utilities and Service Systems

Based on the State CEQA Guidelines, the project would have a significant impact on public utilities and service system resources if it would:

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects
- Need new or expanded entitlements to supply water to the project
- Result in a determination by the wastewater treatment provider that serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to its existing commitments
- Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects
- Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs
- Not comply with federal, state, and local statutes and regulations related to solid waste

Low-impact conflicts would occur if the project would cross or conflict with distribution pipelines or electrical power lines, which are easier to avoid or relocate. Low-impact conflicts are considered less-than-significant impacts on utilities and service systems.

For purposes of analysis for this Draft EIR/EIS, the Authority is using these additional criteria as thresholds for evaluating impacts and determining significance under CEQA. Analysis must assess whether the project would:

- Require or result in the construction of new electrical facilities or expansion and upgrade of existing facilities, the construction of which could cause impacts or significant environmental effects
- Conflict with a major nonlinear fixed facility, such as an electrical substation or wastewater treatment plant, the relocation of which could cause a lengthy and harmful interruption of service
- Conflict with a major linear nonfixed facility, such as large stormwater transmission main or gas or electricity transmission facility, the reconstruction or relocation of which could cause a lengthy and harmful interruption of service.

Energy

According to Appendix F of the State CEQA Guidelines, EIRs must discuss the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. Wise and efficient use of energy may include decreasing overall per-capita energy consumption; decreasing reliance on fossil fuels such as coal, natural gas, and oil; and increasing reliance on renewable energy sources.

The project would have a significant impact under CEQA on energy resources if it would:

- Place a substantial demand on regional energy supply

- Require substantial additional capacity
- Substantially increase peak- and base-period electricity demand.

By contrast, if the project results in energy savings, alleviates demand on energy resources, or encourages the use of efficient transportation alternatives, it would have a beneficial effect.

3.6.5 Affected Environment

This section describes the affected environment for public utilities and energy in the RSA, as presented on Figure 3.6-1 and Figure 3.6-2, sheets 1 through 3. This information provides the context for the environmental analysis and evaluation of impacts.

A summary of interested party issues and concerns about public utilities and energy from public outreach efforts can be found in Chapter 9, Public and Agency Involvement.

The project section would traverse areas that overlap with the service regions of a variety of utility providers for services such as electricity, water, stormwater, communications, drainage, and waste, both hazardous and nonhazardous. To characterize the affected environment, this section summarizes the types of public facilities present, conveys the operators of said public utilities, and characterizes their prevalence within the RSA. Because many utility services like water, energy, communication, natural gas, and petroleum are imported, exported, or more generally part of interconnected statewide systems, they often need to be analyzed regarding regional and statewide operations. Analysis of the utilities in and near the project area helps to ensure that project operations can coincide with continued regular utility operations, and appropriate mitigation can be applied as necessary.

3.6.5.1 Public Utilities and Service Systems

High-risk public utilities within the RSA include facilities for electricity distribution and natural gas and petroleum distribution. Additional major utilities within the RSA consist of telecommunications, potable and irrigable water delivery, and stormwater, wastewater, and solid waste disposal. High-risk and major public utilities are considered those that could disrupt operations of HSR and require additional precautions (refer to Section 3.6.4.3, Methods for Impact Analysis, for a full description of high-risk and major utilities). High-risk utilities, notably, are primarily those that could result in consequential disruptions/spill incidents. Table 3.6-3 provides a summary of the utility and energy providers within the RSA. Figure 3.6-2, sheets 1 through 3, illustrates the major and high-risk utilities in the RSA.

Table 3.6-3 Summary of Utility and Energy Providers within the Resource Study Area[1]

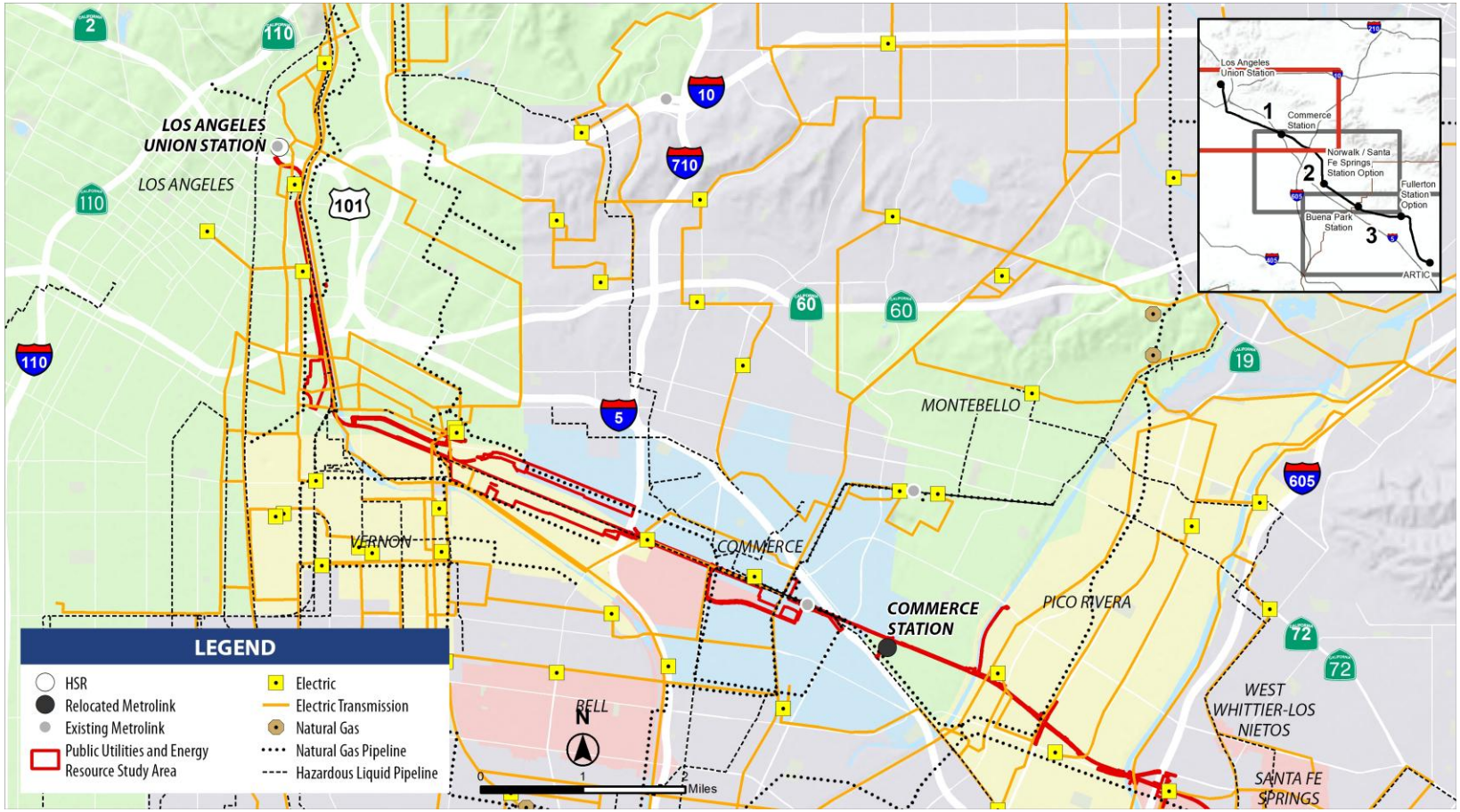
Utility Type	Provider	County or City
Electrical	City of Los Angeles Department of Water and Power	City of Los Angeles
	Southern California Edison	Los Angeles and Orange Counties
	City of Anaheim Public Utilities	City of Anaheim
Natural gas	Southern California Gas Company	Los Angeles and Orange Counties
Petroleum and fuel pipelines	Southern California Gas Company	Los Angeles and Orange Counties

Utility Type	Provider		County or City
Communications	Telephone	TPx Communications	Los Angeles and Orange Counties
		AT&T	
		Sprint	
		Qwest	
		Verizon	
	Cable or Internet	Time Warner Cable	Los Angeles and Orange Counties
		AT&T	
		Comcast	
		Century Link	
		XO Communications	
Water supply	Metropolitan Water District of Southern California		Los Angeles and Orange Counties
	Crescenta Valley Water District		Los Angeles County
	Los Angeles County Waterworks District		
	City of Los Angeles Department of Water and Power		City of Los Angeles
	Vernon Public Utilities		City of Vernon
	California Water Service (Cal Water)		Cities of Bell, Commerce, Montebello
	Golden State Water Company		Cities of Bell, Santa Fe Springs, La Mirada, Norwalk
	Montebello Land and Water Company		City of Montebello
	San Gabriel Valley Water Company		
	South Montebello Irrigation District		
	Pico Rivera Water Authority		City of Pico Rivera
	Pico Water District		
	Suburban Water Systems		City of Pico Rivera, La Mirada, Buena Park
	Santa Fe Springs Water Department		City of Santa Fe Springs
	Norwalk Municipal Water System		City of Norwalk
	Liberty Utilities		
	Buena Park Water Department		City of Buena Park
	Fullerton Water Department		City of Fullerton
	Metropolitan Water District of Southern California		
	Anaheim Public Utilities		City of Anaheim
	City of Orange Water Division		City of Orange
	Orange County Water District		Orange County
	Irvine Ranch Water District		

Utility Type	Provider	County or City
Sewer or wastewater	City of Los Angeles Public Works	City of Los Angeles
	Orange County Sanitation District	Orange County
	City of Anaheim Public Works	City of Anaheim
Stormwater	City of Los Angeles	City of Los Angeles
	Los Angeles County Department of Public Works	Los Angeles County
	City of Norwalk	City of Norwalk
	Orange County Public Works	Orange County
Solid waste collection	Browning-Ferris Industries	City of Los Angeles
	Athens Disposal	City of Montebello
	Consolidated Disposal Services	City of Bell
	Consolidated Disposal, Jackson Disposal	City of Norwalk
	Consolidated Disposal, Jackson Disposal, Serv-Wel Disposal	City of Santa Fe Springs
	OC Waste & Recycling	Orange County

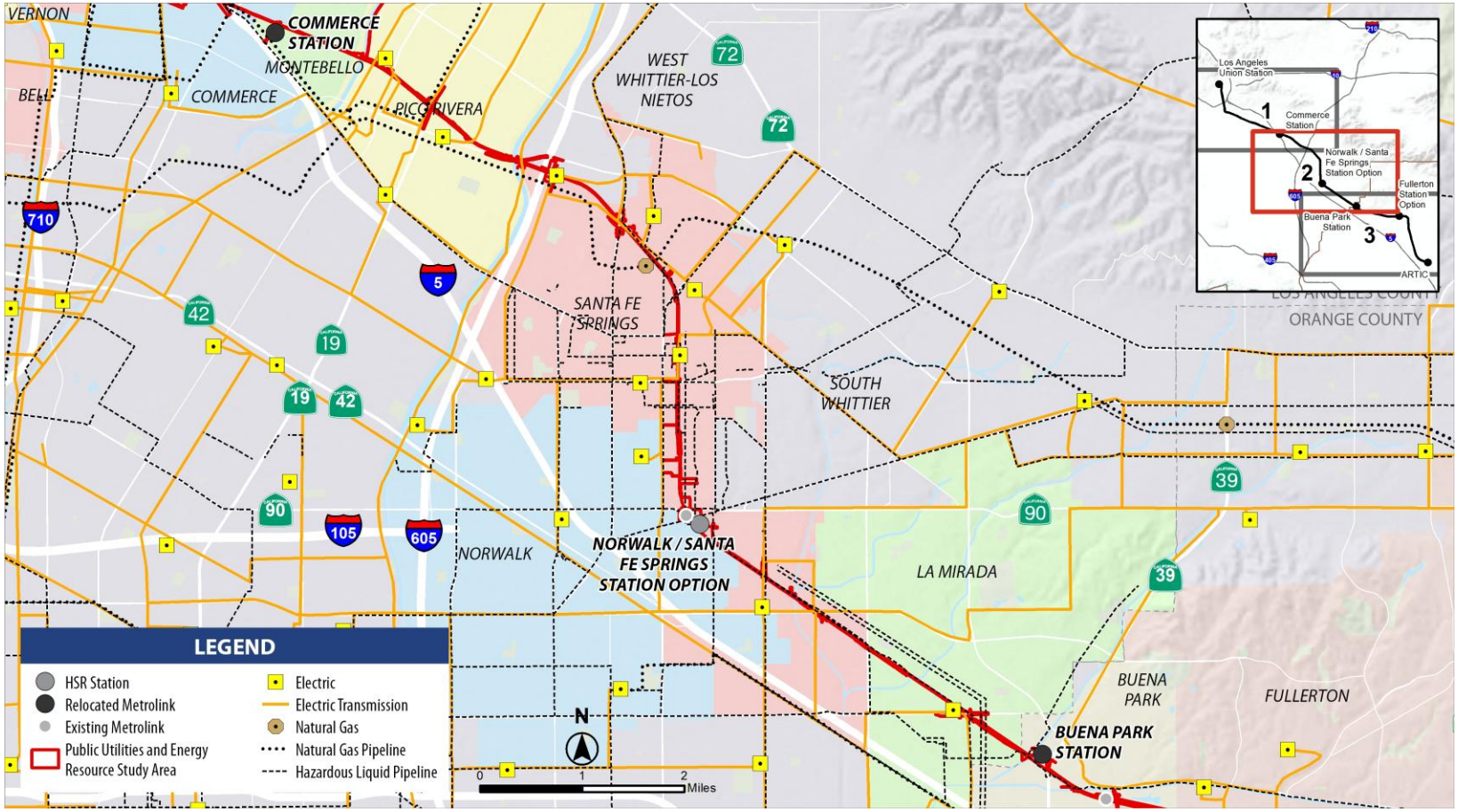
Sources: Authority 2008; Central Orange County LAFCO 2016; Los Angeles Basin LAFCO 2006; LADWP 2022; West San Gabriel Valley LAFCO 2004; IRWD 2024

[1] This table was initially consolidated in 2008; some utilities may have changed ownership over time. The California High-Speed Rail Los Angeles to Anaheim Draft Utility Report of the Los Angeles to Anaheim Draft Preliminary Engineering for Project Definition Design Submittal Volume 4 (Authority 2025b) reflects the most up-to-date utility ownership information. Prior to construction, a comprehensive and updated list of utilities will be consolidated and made available.



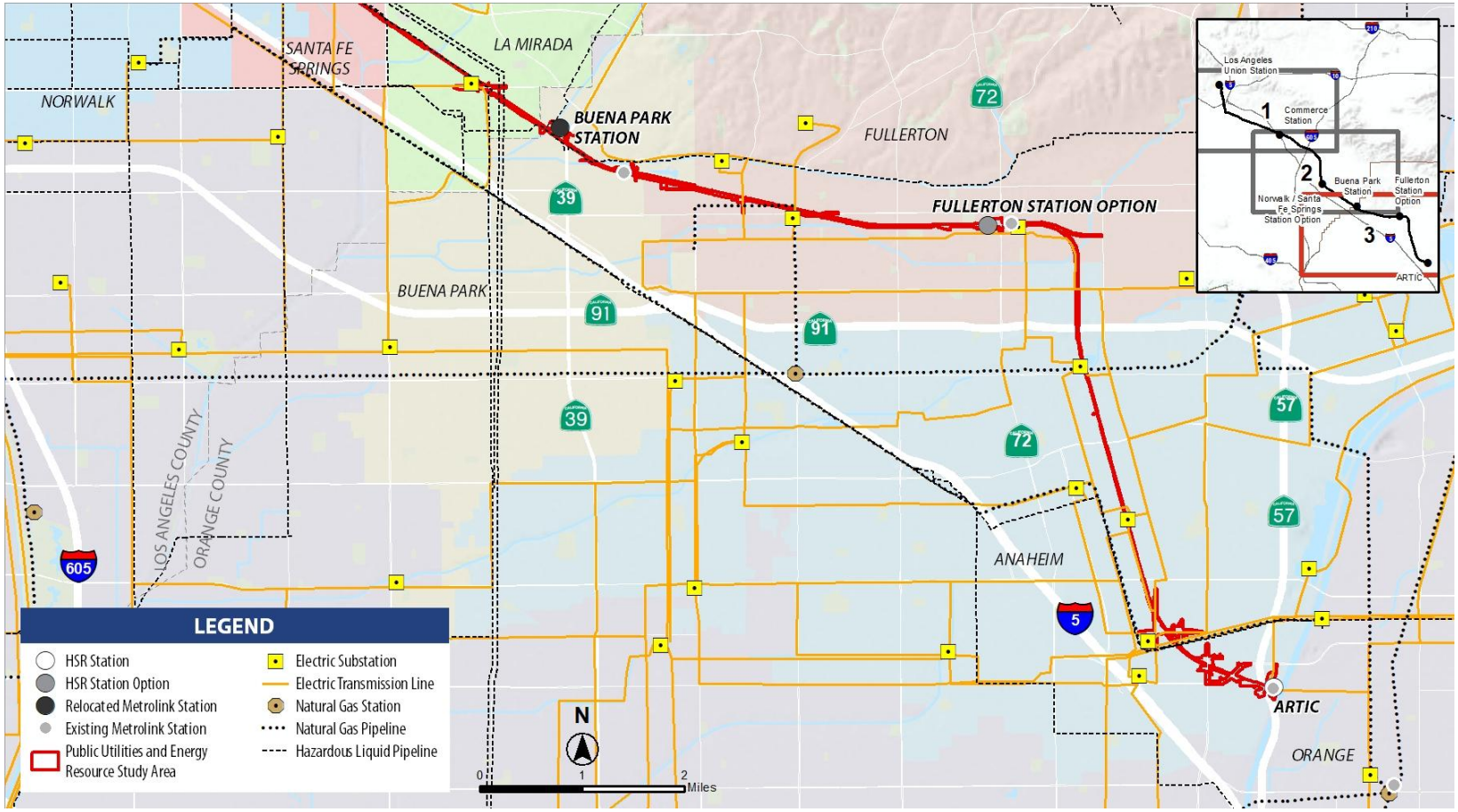
Source: ESRI 2024
Hazardous liquid pipelines, as defined by federal regulation, carry crude oil or refined petroleum products from drilling areas to refineries and markets.

Figure 3.6-2 Major and High-Risk Utilities in the Resource Study Area, Sheet 1 of 3



Source: ESRI 2024

Figure 3.6-2 Major and High-Risk Utilities in the Resource Study Area, Sheet 2 of 3



Source: ESRI 2024

Figure 3.6-2 Major and High-Risk Utilities in the Resource Study Area, Sheet 3 of 3

Electrical Transmission Lines

Southern California Edison (SCE) is the primary electricity provider, with electrical lines, ducts, conduits, and major transmission lines throughout Los Angeles and Orange Counties, followed by LADWP. SCE serves more than 15 million people in a 50,000-square-mile area of central, coastal, and Southern California (SCE 2023). Both Shared Passenger Track Alternatives A and B of the proposed HSR alignment are anticipated to run parallel and at times cross both overhead and underground high-voltage transmission lines within the RSA.

The Shared Passenger Track Alternatives would need to connect to substations owned and operated by the Cities of Los Angeles and Anaheim. Although the substation connection in Anaheim is adjacent to the HSR right-of-way and thus relatively straightforward, the Los Angeles substation connection would require construction of approximately 1 mile of aboveground power line along Washington Boulevard to connect to a nearby substation (east of the Los Angeles River, north of Washington Boulevard, north of Union Pacific Railroad tracks, and between De La Torre Way and Spence Street). Each substation would require a 2-acre parcel and would have a 20-foot-wide access road or easement from the nearest street.

High-Pressure Natural Gas Pipelines

California is the seventh-largest oil-producing state in the United States (EIA 2023), with important onshore oilfields in the city of Los Angeles. Oil produced is processed into fuels and other petroleum products at refineries in the San Francisco Bay Area and Southern California. There are several high-pressure natural gas transmission pipelines in Los Angeles and Orange Counties within and adjacent to the rights-of-way of the project section (SoCalGas n.d.a, n.d.b). As of 2024, there are no known improvements, upgrades, or capital improvement projects planned on high-pressure natural gas pipelines within the RSA.

Petroleum and Fuel Pipelines

California is the seventh-largest crude oil–producing state in the United States, with important onshore oilfields in the city of Los Angeles. Oil produced is processed into fuels and other petroleum products at refineries primarily in Southern California, and California ranks third among states in the United States for oil-refining capacity (EIA 2023). As a result, pipelines for crude oil run throughout the RSA; these pipelines are owned and operated by SCE.

Kinder Morgan is the largest independent transporter of refined petroleum products in the United States. Kinder Morgan owns and operates many miles of fuel pipelines in California, including within the RSA. Its major fuel pipelines in the vicinity of the project area run from Long Beach northeast toward Pomona, with an additional pipeline running from Norwalk to Orange, adjacent to the Interstate 5 corridor (Hawes n.d.).

Communication Facilities

Various communication facilities (underground and aboveground) owned and operated by AT&T, Verizon, Qwest, Sprint, Time Warner Cable, Comcast, Century Link, and XO Communications are within the RSA. Other communication service providers may also own or lease cellular service or microwave towers and antennas, or telecommunication cables or overhead distribution lines. Underground communication utilities are assumed to have shallow depths, except those crossing under existing features such as underpasses and creeks. These existing communication lines run longitudinal and transverse to railroad tracks and facilities throughout the cities of Los Angeles, Vernon, Montebello, Pico Rivera, Santa Fe Springs, Norwalk, La Mirada, Buena Park, Fullerton, and Anaheim.

In general, utilities would be protected in place or relocated horizontally or vertically to avoid construction- or operation-related conflicts. The existing longitudinal utilities that run along the existing railroad right-of-way, such as overhead lines, would need to be laterally or vertically relocated. Longitudinal lines such as communication lines or fiber-optic lines may need to be adjusted or relocated to maintain owner access; however, the access must be from outside the right-of-way.

Water Supply Infrastructure

Los Angeles County and Orange County water infrastructure facilities in the RSA consist of water mains and distribution lines, which are owned, managed, or regulated by the five districts and departments listed in Table 3.6-4. Table 3.6-4 also lists the water sources of the water supply companies and districts that could be affected by the Shared Passenger Track Alternatives.

Table 3.6-4 Regional Water Suppliers in the Project Section[1]

Water District	Water Sources	Predominant Uses	Area Served
Metropolitan Water District of Southern California	Sacramento River, San Joaquin River, Colorado River, recycled water, desalination, local groundwater	Residential, industrial, agricultural	5,200 square miles, 19 million residents, 830 miles of pipelines, 400 service connections
Los Angeles County Waterworks District	Lake Oroville, Feather River Watershed, Sacramento/ San Joaquin Delta	Urban, agricultural	750,000 acres of irrigated farmland, 260,000 residents, 67,979 active service connections
Los Angeles Department of Water and Power	Los Angeles Aqueduct, purchased from Metropolitan Water District, local groundwater, recycled water	Residential, commercial, industrial	473 square miles, 680,000 residents, 7,340 miles of pipelines, 735,600 active service connections
Crescenta Valley Water District	Groundwater purchased from Metropolitan Water District	Residential, commercial	4 square miles, 32,000 residents, 8,000 active service connections
Irvine Ranch Water District	Groundwater purchased from Municipal Water District of Orange County, recycled water	Residential, industrial, commercial, agricultural	181 square miles, 465,000 residents, 570 miles of pipelines, 122,000 active service connections

Sources: IRWD 2024; CVWD 2024; LACWD 2024; MWD 2024; LADWP 2022
[1] The information provided is systemwide and not necessarily exclusive to the resource study area.

Wastewater Infrastructure

Given the location of wastewater infrastructure in proximity to the project section, wastewater pipelines have the potential to be in conflict with Shared Passenger Track Alternatives rights-of-way. Table 3.6-5 summarizes municipal wastewater treatment plants for the urban areas of Los Angeles County and Orange County in the project section.

Table 3.6-5 Wastewater Treatment Plant Existing Average Flow and Capacity Summary for Stations and Light Maintenance Facilities

Jurisdiction	Agency	Wastewater Treatment Plant Name	Wastewater Treatment Plant Address	Average Flow/ Capacity (mgd)
Cities of Glendale and Los Angeles	City of Los Angeles Public Works and Glendale Public Works	Los Angeles/Glendale Water Reclamation Plant	4600 Colorado Blvd, Los Angeles, CA	14/20
City of Los Angeles	City of Los Angeles Public Works	Hyperion Water Reclamation Plant	12000 Vista del Mar, Playa del Rey, CA	275/450
City of Carson	Los Angeles County Sanitation District	A.K. Warren Water Resource Facility	24501 S Figueroa St, Carson, CA	232/400

Jurisdiction	Agency	Wastewater Treatment Plant Name	Wastewater Treatment Plant Address	Average Flow/ Capacity (mgd)
Orange County	Orange County Sanitation District	Orange County Sanitation District Treatment Plant No. 2	22212 Brookhurst St, Huntington Beach, CA	127/312

Sources: City of Los Angeles 2023; LACSD 2023; Orange County Sanitation District 2023
mgd = million gallons per day

Stormwater Systems

The storm drainage systems for the cities in the vicinity of the project section are limited because of the low annual rainfall of the region. The systems typically transport stormwater runoff to retention or detention basins, typically for groundwater recharge. The Los Angeles County Flood Control District and Orange County Public Works Operations and Maintenance Department are responsible for planning and managing flood control areas in the project section.

Solid Waste Facilities

Under the Resource Conservation and Recovery Act and AB 939, affected county or municipal solid waste disposal facilities are required to plan for nonhazardous solid waste facility expansions, or addition from anticipated sources. Eight primary landfills in Los Angeles County and Orange County would serve project construction and operational demands. Table 3.6-6 summarizes landfill capacity for five sites in Los Angeles County and three sites in Orange County that would serve the project. No landfill accepts hazardous waste in these two counties.

Hazardous Waste Disposal Facilities

There are two Resource Conservation and Recovery Act–permitted hazardous waste landfills in California—the Kettleman Hills Facility in Kings County (Kettleman) and the Clean Harbors Facility in Buttonwillow in Kern County (Buttonwillow) (DTSC n.d.). The Kettleman Hills facility is approximately 190 miles north of the project footprint and the Clean Harbors Buttonwood Facility is approximately 150 miles north of the project footprint. The Kettleman Hills hazardous waste disposal facility in Kings County has a remaining disposal capacity of approximately 2.9 million cubic yards based on the most recent Resource Conservation and Recovery Act permit submitted to the Department of Toxic Substances Control in 2024 and currently undergoing public comment and review (DTSC 2024). The Clean Harbors Buttonwillow Facility has a permitted hazardous waste disposal capacity of 7.75 million cubic yards and an estimated closure date of 2040 (CalRecycle 2025).

Table 3.6-6 Landfill Facility Summary in Los Angeles and Orange Counties

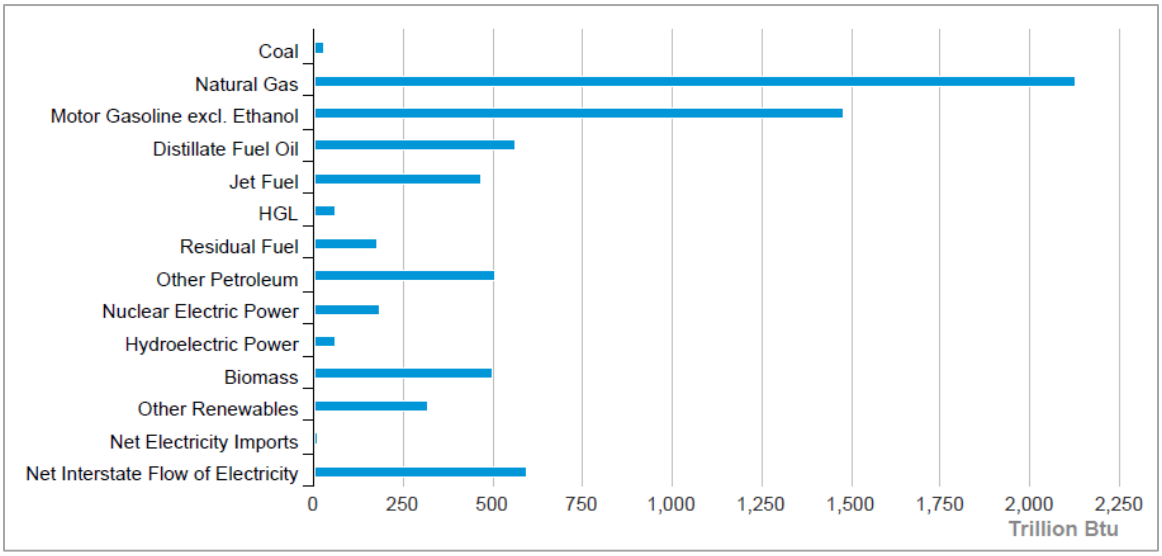
Facility Name	Activity	Type of Waste Accepted	Operator	Location	Permitted Daily Disposal Capacity (tons per day)	Estimated Permitted Landfill Capacity (cubic yards)	Remaining Landfill Capacity (cubic yards)	Estimated Permitted Closure Date
Sunshine Canyon City County Landfill[1]	Solid waste landfill	C&D waste, green materials, household trash, industrial nonhazardous waste, and inert waste	Browning-Ferris Industries of California	14747 San Fernando Rd, Sylmar, CA	12,100	140,900,000	77,900,000	2037
Burbank Landfill Site No. 3[2]	Solid waste landfill	Mixed solid waste and mixed inert waste, including C&D waste	City of Burbank	1600 Lockheed View Dr, Burbank, CA	240	5,933,365	5,174,362	2053
Scholl Canyon Sanitary Landfill[3]	Solid waste landfill	Segregated asphalt, municipal solid and inert waste, clean dirt, manure, segregated uncontaminated green waste, scrap tires, C&D waste, and industrial material	City of Glendale	3001 Scholl Canyon Rd, Glendale, CA	3,400	58,900,000	9,900,000	2030
Calabasas Landfill[4]	Solid waste landfill	Municipal solid waste, asphalt and concrete, dirt, wood waste and green waste, C&D waste, appliances, tires, and electronic waste	Sanitation Districts of Los Angeles County	5300 Lost Hills Rd, Agoura, CA	3,500	69,300,000	14,500,000	2029
Savage County Landfill[5]	Solid waste landfill	Inert, green materials, industrial, construction/ demolition, mixed municipal	City Of Whittier	13919 E Penn St, Whittier, CA	3,350	19,337,450	9,510,833	2079
Olinda Alpha Sanitary Landfill[6]	Solid waste landfill	Agricultural, industrial, C&D, mixed municipal, wood waste, soil, clean broken asphalt, and tires	Orange County Waste & Recycling Department	1942 N Valencia Ave, Brea, CA	8,000	148,800,000	17,500,000	2036

Facility Name	Activity	Type of Waste Accepted	Operator	Location	Permitted Daily Disposal Capacity (tons per day)	Estimated Permitted Landfill Capacity (cubic yards)	Remaining Landfill Capacity (cubic yards)	Estimated Permitted Closure Date
Frank R. Bowerman Sanitary Landfill[7]	Solid waste landfill	Agricultural, industrial, C&D, mixed municipal, wood waste, and tires	Orange County Waste & Recycling Department	11002 Bee Canyon Access Rd, Irvine, CA	11,500	266,000,000	205,000,000	2053
Prima Deshecha Sanitary Landfill[8]	Solid waste landfill	Municipal solid waste, including wood waste, asphalt, and dewatered sewage, from commercial haulers and the public	Orange County Waste & Recycling Department	32250 Avenida La Pata, San Juan Capistrano, CA	4,000	172,900,000	128,800,000	2102

Sources: CalRecycle 2023a, 2023b, 2023c, 2023d, 2023e, 2023f, 2023g, 2023h
[1] Based on 2018 capacity information
[2] Based on 2010 capacity information
[3] Based on 2011 capacity information
[4] Based on 2014 capacity information
[5] Based on 2011 capacity information
[6] Based on 2020 capacity information
[7] Based on 2008 capacity information
[8] Based on 2023 capacity information
C&D = construction and demolition

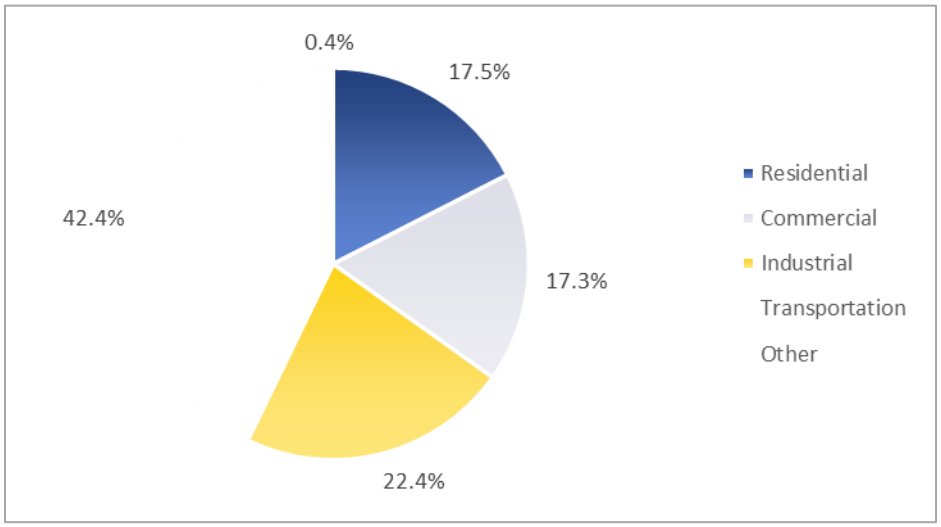
3.6.5.2 Energy

In 2023, California's per-capita energy consumption ranked 49th in the nation. The state's low energy usage was, in part, because of its mild climate and energy efficiency programs. However, California ranked second in the nation in terms of total energy consumption in 2023, at 6,882 trillion British thermal units (EIA 2023). The transportation sector represents 42.4 percent of California's energy use. The industrial sector consumes 22.4 percent, the residential sector consumes 17.5 percent, and the commercial sector consumes 17.3 percent (EIA 2023). Figure 3.6-3 illustrates California's energy consumption by type in 2022, and Figure 3.6-4 depicts California energy consumption estimates by sector for 2023.



Source: EIA 2023
Btu = British thermal units; HGL = hydrocarbon gas liquids

Figure 3.6-3 California Energy Consumption Estimates by Type, 2022



Source: EIA 2023

Figure 3.6-4 California Energy Consumption by Sector, 2022

Electricity

Demand

There are two ways to measure electricity demand: consumption and peak demand. Electricity consumption is the amount of electricity used by consumers in the state. According to the U.S. Energy Information Administration, California consumes more electricity than it generates, and about one-fourth of California's electricity comes from outside the state (EIA 2023). In 2022, total statewide electricity consumption was 287,827 million kilowatt-hours (CEC 2023a). Table 3.6-7 summarizes electricity consumption in Los Angeles and Orange Counties in 2022.

The highest electric power requirement during a specified period, known as *peak demand*, is measured as the amount of electricity consumed at any given moment, usually integrated over a 1-hour period. Because electricity must be generated at the time it is consumed, this measurement specifies the greatest generating capacity that must be available during periods of peak demand. Peak demand is important in evaluating system reliability, identifying congestion points on the electrical grid, and designing required system upgrades. California's peak demand typically occurs in August, between 4 p.m. and 6 p.m. In the energy RSA, high air-conditioning loads and irrigation pumping contribute to this summer peak demand.

Table 3.6-7 Electricity Consumption in Los Angeles and Orange Counties in 2022

County	2022 Usage (million kilowatt-hours)
Los Angeles County	68,485
Orange County	20,244

Source: CEC 2023a
Numbers are rounded to nearest million kilowatt-hours.

Generation

The net power supply in the grid controlled by the California Independent System Operator was 59,617 megawatts (MW) in the summer of 2023 (CAISO 2023).

Table 3.6-8 summarizes the fuel sources for electric power generated in California in 2022.

Table 3.6-8 Fuel Sources for Electric Power in California in 2022

Fuel Source	Gigawatt-Hours	Percentage of Fuel Mix
Coal	237	0.13
Natural gas	96,457	47.46
Oil	65	0.03
Other (waste heat/petroleum)	315	0.15
Unspecified	-	0.0
Total Thermal and Unspecified	**97,110**	**47.78**
Renewables		
Nuclear	17,627	8.67
Large hydro	14,607	7.19
Biomass	5,366	2.64
Geothermal	11,110	5.47
Small hydro	3,005	1.48

Fuel Source	Gigawatt-Hours	Percentage of Fuel Mix
Solar	40,494	19.92
Wind	13,938	6.86
Total Non-GHG and Renewables	**106,147**	**52.22**
Total Energy	**203,257**	**100**

Source: CEC 2023b
Sum of numbers in table will not equal total because of rounding.
GHG = greenhouse gas

Electricity Demand and Generation Capacity Outlook

Statewide, the average summer net power supply in 2023 was estimated at 59,617 MW. Since the widespread heat events of 2020 and subsequent extreme events, the California Independent System Operator, the California Legislature, and state entities have taken several measures to ensure grid reliability beyond conventional planning standards. These measures and programs include approving procurement of additional resources, ensuring existing resources are retained in service, and improving operational readiness and measures to access resources or load reductions when faced with the risk of shortfalls under extreme conditions. In 2024, the hydroelectric power produced in California accounted for 12.8 percent of all such power in the United States, and produced 2,469 thousand megawatt-hours of energy, and California is consistently in the top four states for hydroelectric power production in the United States (EIA 2024). Although energy generation through hydropower is a declining portion of California energy sources because of high variability in rain and snowfall year over year, it is still considered an important resource for the purpose of the state's electricity generation planning and capacity (EIA 2024). Although load has grown from 2022 to 2023, these results represent a substantial improvement from the 2022 Summer Assessment, when there was a shortfall in reaching the planning target (CAISO 2023). California's population is projected to exceed 42 million by 2025 and more than 47 million by 2040, requiring an additional 90,994 MW of peak summer capacity by 2040[1] to meet demand and have an adequate reserve margin (California Department of Finance 2013). CEC's *California Energy Demand 2018–2030, Revised Forecast* (CEC 2018a) describes CEC's preliminary 10-year forecasts for electricity consumption, retail sales, and peak demand for the SCE planning area and for the state as a whole. CEC's forecast scenarios are referred to as *baseline cases*, meaning they do not include additional achievable energy efficiency savings. This particular forecast considers three cases (low, mid, and high) designed to capture a reasonable range of demand outcomes over the next 10 years:

- **Preliminary Low Demand:** The low-energy demand case incorporates lower economic or demographic growth, higher assumed rates, and higher self-generation impacts.
- **Preliminary Mid-Demand:** The mid-energy demand case uses input assumptions at levels between the high and low cases.
- **Preliminary High Demand:** The high-energy demand case incorporates relatively high economic or demographic growth and climate change impacts, and relatively low electricity rates and self-generation impacts.

Projected electricity consumption for the three preliminary forecast cases and the *California Energy Demand 2018–2030, Revised Electricity Forecast* (CEC 2018a) mid-energy demand case is presented on Figure 3.6-5. By 2027, all three new cases indicate higher consumption than 2016–2026 forecast mid-case. Annual sales growth rates from 2018 to 2030 for the 2018–2030

[1] This value assumes a 1.5 percent annual growth rate in peak demand and includes a 18.5-percent reserve margin.

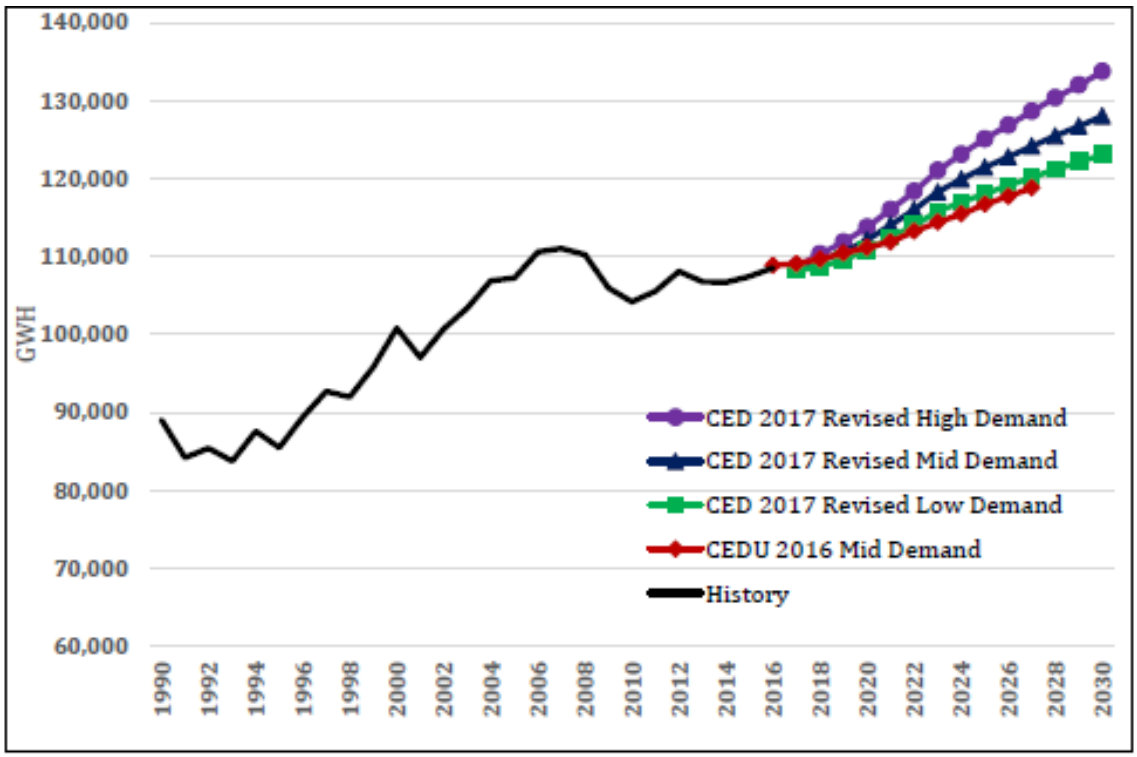
forecast (CEC 2018a) averages 1.23 percent in the mid-case, compared to 0.28 percent in the 2016–2026 forecast mid-case (CEC 2016).

The increasing demand for electrical energy is based on growth in both population (i.e., households) and commerce (commercial and industrial businesses). Weather can also influence electricity demand. Expansion of photovoltaic energy production and increased sales in electric vehicles may also affect energy demand. Increases in photovoltaic production reduce overall energy sales. In 2030, SCE's mid-energy demand case peak demand is projected to be approximately 24,554 MW (CEC 2020).

Precise projections of in-state generation capacity for the HSR project's horizon year of 2040 are not available because generation infrastructure decisions typically are not made more than 2 to 3 years in advance of construction. However, the California Independent System Operator released its *20-Year Transmission Outlook Update*, which lays out its plan for transmission infrastructure to accommodate the rapidly changing energy portfolio in its service area. This plan estimates that 165.1 gigawatts of new resources are required by 2045 to meet demand. New energy resources include 48,813 MW of battery energy storage, 4,000 MW of long-duration storage, 5,000 MW of generic clean firm or long-duration storage, 69,640 MW of utility scale solar, 2,332 MW of geothermal, and over 35,000 MW of wind generation (including offshore, in-state/out-of-state onshore) (CAISO 2024).

California's Renewables Portfolio Standards, established in 2002 under SB 1078 and expanded in 2011 under SB 2 (1X), require investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33 percent of total procurement by 2020. CPUC and CEC jointly implement the Renewables Portfolio Standards program.

SB 350 has recently reaffirmed California's commitment to the Renewables Portfolio Standards. Specifically, SB 350 requires that California increase the amount of electricity procured from renewable energy sources from 33 percent by 2020 to 50 percent by 2030. The state is on track with the goals set out in SB 350; in 2021, 37 percent of the state's electricity was sourced from renewable sources (CEC 2023e).



Source: CEC 2018a
CED = California Energy Demand; CEDU = California Energy Demand Update; GWH = gigawatt-hours

Figure 3.6-5 Statewide Baseline Annual Electricity Consumption

Transmission

According to the *Final Bay Area to Central Valley High-Speed Train Program EIR/EIS* (Authority 2008), California's electricity transmission system comprises more than 31,000 miles of bulk electric transmission lines rated at 69 kV or more and includes towers and substations. The system links generation to distribution in a complex electrical network that balances supply and demand on a nearly instantaneous basis.

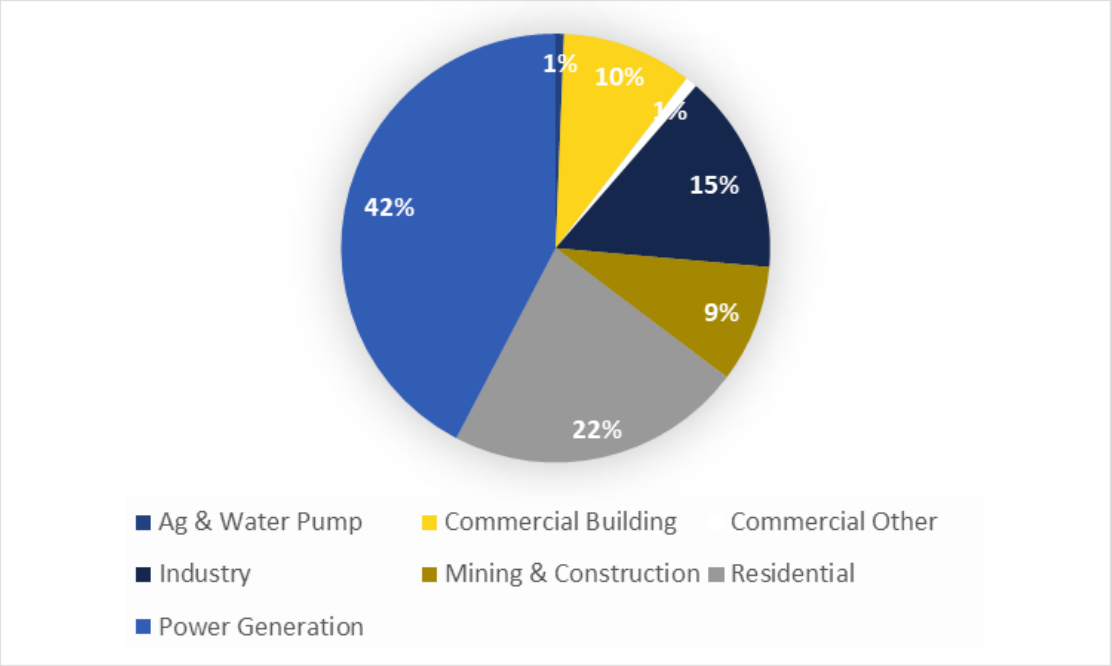
In addition to the in-state transmission connections, a system of transmission interconnections links California's electricity grid with out-of-state electricity utilities. The Western Interconnection links California to electricity generation facilities in 10 other western states, western Canada, and northwestern Mexico. With a total importing capacity of 18,170 MW, these interconnections serve a critical role in satisfying California's electricity consumption (Authority 2011). As electricity consumption grows, the addition of transmission capacity may facilitate energy transfers from subregions where there is surplus generating capacity to subregions that require additional energy. However, when the overall energy market is in a deficit, additional transmission capacity alone cannot relieve the subregional deficits and additional energy generation is required.

Natural Gas

Demand

California is the second-largest consumer of natural gas in the nation. In 2022, total natural gas demand in California for industrial, residential, commercial, and electric power generation was 1,960 billion cubic feet per year (CEC 2022a, 2022b), down from approximately 2,100 billion cubic feet per year in 2016 (CEC 2017). Los Angeles County accounted for approximately 8.8 percent of statewide natural gas demand, with 171.7 billion cubic feet per year. Orange County accounted for approximately 1.6 percent of statewide natural gas demand, with 32.2 billion cubic feet per year (CEC 2023a).

Statewide demand in the industrial, residential, and commercial sectors has remained relatively flat for the last decade, in large part because of energy efficiency measures (CEC 2022a). Figure 3.6-6 illustrates natural gas demand in California by sector for 2022.



Source: CEC 2022a

Figure 3.6-6 California Natural Gas Demand by Sector, 2022

Generation

Natural gas generation accounted for approximately 31 percent of California's energy consumption in 2021. In 2017, in-state sources provided about 10 percent of the natural gas consumed in California, and interstate pipeline shipments satisfied the remaining 90 percent. Most of California's out-of-state supply comes from major supply basins in Canada, Texas, New Mexico, Colorado, and Wyoming (EIA 2023). Nearly 45 percent of the natural gas burned in California was used for generation of electricity, with other primary uses being residential (21 percent), industrial (25 percent), and commercial (9 percent).

The amount of electric generation by natural gas has increased between 2019 and 2023 from 86,248 to 94,192 gigawatt-hours.

According to CEC's Electricity and Natural Gas Demand Forecast (CEC 2015), the mid-energy demand case for natural gas in California is projected to be 5,920 million cubic feet per day in 2030—down from 6,403 million cubic feet per day in 2013. The natural gas mid-energy demand case for power generation in California is expected to decline by about 37 percent between 2015 and 2030 at an annual rate of 1.1 percent. The anticipated decline is because of implementation of renewable generation, increased energy efficiency, and greater mobilization of energy storage technology. In the United States as a whole, however, natural gas production grew by 4 percent in 2023, and evidence suggests that increased drought conditions in places like California could lead to higher levels of natural gas use in the future (AJOT 2022; EIA 2024).

The projected decline in natural gas generation in California considers the potential impact of relevant energy policy, such as the Renewables Portfolio Standard.[2] After full implementation of the certification guidelines outlined in the Renewables Portfolio Standard and full penetration of energy efficiency, overall natural gas demand increases from population growth and associated demand would reach 5.92 billion cubic feet per day by 2030 in the mid-demand case (CEC 2016). California currently imports approximately 90 percent of its natural gas supply and could continue to scale down generation and import natural gas to meet energy demand as needed (CEC 2024).

Petroleum

Automobile travel is the predominant mode of passenger transportation within the energy RSA. In 2019, the daily VMT per capita was 20.6 miles in Los Angeles County and 22.6 in Orange County (SCAG 2024). Historically, demand for transportation services (and petroleum consumption) in California has mirrored growth in the state's population and economic output. The *Forecast of California Transportation Energy Demand* (CEC 2018b) indicates that VMT has been increasing for decades, reaching a new high in 2014 of 326 billion miles and continuing the growth trend of the last decade. Numbers appear to be decreasing; in 2022, VMT in the state of California was 316 billion miles (Caltrans 2022). Projected demand for gasoline indicates a continuous decline, with demand in 2030 ranging from 12.3 billion to 12.7 billion gallons. This amounts to a reduction of more than 20 percent compared to the levels of gasoline demand in 2017. The declining trend in gasoline consumption is caused primarily by gasoline displacement stemming from Corporate Average Fuel Economy[3] and zero-emission vehicle regulations.[4] Demand for diesel has grown with the economy and freight movement in California over the last decade but has tempered and is expected to reach approximately 4.7 billion gallons in 2030.

3.6.6 Environmental Consequences

3.6.6.1 Overview

This section discusses the potential impacts on public utilities and energy from construction and operation of the project alternatives and station options. Each resource category addresses potential impacts from the No Project Alternative and the Shared Passenger Track Alternatives. For this resource topic, any differences in the impacts for the alternative and HSR station options will be described in the analysis.

The project design includes several features (IAMFs) that will minimize impacts on public utilities and energy. For instance, the contractor will notify the public of utility interruptions no less than 7 days prior to outage, and construction will be coordinated to avoid interruptions of utility service to hospitals and other critical users (**PUE-IAMF#3**); a SWPPP will be implemented (**PUE-IAMF#4**); a full inventory of hazardous materials will be developed (**HMW-IAMF#9**). For the full list of IAMFs related to public utilities and energy that are included in project design, refer to Section 3.6.4.2, Impact Avoidance and Minimization Features.

The IAMFs differ from mitigation measures in that they are part of the project design. In contrast, mitigation measures are available to further reduce, compensate for, or offset project impacts that the analysis identifies under NEPA or concludes are significant under CEQA.

The impacts of the Shared Passenger Track Alternatives are described as follows.

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[2] According to the 2022 Integrated Energy Policy Report, California and other Western Electricity Coordinating Council states built generation portfolios to meet their individual Renewables Portfolio Standards. In California, the requirement is for renewable generation to reach 90 percent by 2045 (CEC 2023d).

[3] Enacted by Congress in 1975, the Corporate Average Fuel Economy standards are intended to reduce energy consumption by increasing the fuel economy of cars and light trucks.

[4] The Zero-Emission Vehicle Program is a California state regulation that requires automakers to sell electric cars and trucks in California and nine other states (Connecticut, Maine, Maryland, Massachusetts, New Jersey, New York, Oregon, Rhode Island, and Vermont).

Construction Impacts

- Impact PU&E-1: Temporary Interruption of Utility Service
- Impact PU&E-2: Accidents and Disruption of Services
- Impact PU&E-3: Effects from Water Demand During Construction
- Impact PU&E-4: Effects on Stormwater Infrastructure During Construction
- Impact PU&E-5: Effects from Waste Generation During Construction
- Impact PU&E-6: Conflicts with Existing Utilities
- Impact PU&E-7: Reduced Access to Existing Utilities in the HSR Right-of-Way During Construction
- Impact PU&E-8: Effects from Upgrade or Construction of Power Lines
- Impact PU&E-9: Construction Energy Consumption

Operational Impacts

- Impact PU&E-10: Reduced Access to Existing Utilities in the HSR Right-of-Way During Operation
- Impact PU&E-11: Operational Water Supply Demand
- Impact PU&E-12: Operational Wastewater Service Demand
- Impact PU&E-13: Effects on Storm Drain Facilities During Operation
- Impact PU&E-14: Effects on Solid Waste During Operation
- Impact PU&E-15: Effects from Hazardous Waste Generation
- Impact PU&E-16: Operational Energy Demand

3.6.6.2 No Project Alternative

The No Project Alternative is the scenario where the Shared Passenger Track Alternatives are not implemented. If the Shared Passenger Track Alternatives are not built, then temporary construction impacts and permanent changes from operations associated with this project would be avoided.

Under the No Project Alternative, recent development trends within the project section are anticipated to continue, leading to impacts on public utilities and energy. Existing land would be converted for residential, commercial, industrial, and transportation infrastructure development to accommodate future growth, placing potential pressures on public utilities and energy resources. In addition, the demand for energy would increase as a result of the increased population associated with increased housing, leading to additional public utility and electricity demand. Planned development and transportation projects that would occur under the No Project Alternative would most likely include various forms of mitigation to address impacts on public utilities and energy. In addition, related county and city ordinances contain goals and policies to ensure that sewer, water, and utility infrastructure is adequate to accommodate new development.

However, similar impacts, including the increase in demand for energy, water, wastewater treatment, and solid and hazardous waste disposal could continue under the No Project Alternative through expected development trends. The population in Los Angeles and Orange Counties is projected to grow, as discussed in Chapter 1, Project Purpose, Need, and Objectives, and Section 3.18, Regional Growth, of this Draft EIR/EIS. An increase in population would result in greater demand for utility services. Section 3.19 of this Draft EIR/EIS discusses foreseeable future projects, which include commercial centers, industrial parks, road network improvements, and residential developments. These projects are planned or approved to accommodate the

growth projections in the area. Local utilities have capital improvement plans to accommodate the anticipated population growth. These improvements include expansion of the wastewater treatment plants and infrastructure additions and upgrades to provide services to growing populations. The reasonably foreseeable development under the No Project Alternative is evaluated to determine the significance of impacts and mitigation measures, as needed, to avoid or reduce significant impacts. It would be the affected jurisdictions' responsibility to ensure compliance with established regulations. The other transportation and development projects and planned projects under the No Project Alternative would undergo environmental review, and any potential effects on public utilities and energy resources would be analyzed and mitigated, to the degree feasible.

Projections indicate demand for energy increasing at a level commensurate with population growth. The region would increase peak- and base-period electricity demand and require additional generation and transmission capacity. According to the CEC Demand Analysis Office (CEC 2018a), the average annual growth rate for statewide electricity demand between 2016 and 2027 is forecast to increase between 2.71 percent (low energy demand) and 3.32 percent (high energy demand). The CEC analysis included forecasts that considered impacts (beneficial and adverse) of approved efficiency programs, climate change, electric vehicle use, other electrification projects (including port projects and HSR), and demand response (time-of-use pricing) programs. Energy use in Los Angeles and Orange Counties is anticipated to trend along the forecast state average during this same time period (2024 to 2040).

Regional VMT is estimated to decrease 1.6 and 1.3 percent, respectively, in Los Angeles and Orange Counties under baseline conditions without implementation of the Southern California Association of Governments' 2024–2050 Regional Transportation Plan/Sustainable Communities Strategy (Connect SoCal). Implementation of the 2024–2050 Regional Transportation Plan/Sustainable Communities Strategy would further reduce VMT and is estimated to reduce VMT by 3.2 and 2.3 percent in 2045 in Los Angeles and Orange Counties, respectively, and 11.6 percent for the entire plan region (SCAG 2024). Potential increases in petroleum demand could be a concern relative to energy supplies under the No Project Alternative. The 2024–2050 Regional Transportation Plan/Sustainable Communities Strategy does incorporate HSR into its regional plan for transportation system advancements, but it does not factor the Shared Passenger Track Alternatives or other HSR lines into its VMT-reducing travel mode calculations specifically.

3.6.6.3 Project Impacts

Construction and operations of the Shared Passenger Track Alternatives could result in temporary and permanent impacts on public utilities and energy resulting from station operations; demolition of existing structures, clearing, and grubbing; reduction of permeable surface area; handling, storing, hauling, excavating, and placing fill; possible pile driving; and construction of aerial structures, track, LMFs, traction power substations (TPSS), power pole installation, bridges, road modifications, utility upgrades and relocations, HSR electrical systems, and railbeds.

The following sections separately describe each construction and operational impact for the Shared Passenger Track Alternatives.

Public Utilities and Service Systems

Construction Impacts

Impact PU&E-1: Temporary Interruption of Utility Service

Shared Passenger Track Alternative A

Construction of the project, including the LMF at 26th Street in Vernon, could result in planned temporary interruptions in utility service at any given location during the 1- to 7-year duration of construction. Construction, including work associated with reconductoring and connection of electrical systems, would require the temporary shutdown of subsurface, aboveground, or overhead electrical transmission lines; natural gas transmission pipeline facilities; petroleum product conveyance facilities; communication facilities; and water infrastructure. Shutdowns

would interrupt utility services to industrial, commercial, and residential customers. Where necessary, the project design and phasing of construction activities would minimize interruptions. This includes upgrades of existing power lines and poles to connect the HSR system to existing substations as well as the proposed TPSSs in Los Angeles and Anaheim. Additionally, the Los Angeles Department of Water and Power Receiving Station No. 5 would need to be modified, with a new receiving station added to the south of the existing substation.

Prior to construction in areas where utility service interruptions are unavoidable, the contractor will notify the public of planned outages through a combination of communication media (i.e., phone, email, mail, newspaper notices, other means) within the jurisdiction of the affected service providers (**PUE-IAMF#3**). The public notifications would specify the estimated duration of the planned outage and be published no less than 7 days prior to the outage, in accordance with California Independent System Operator requirements (CAISO 2023). Construction will be coordinated with utility service providers and utility customers to avoid interruptions of utility service to hospitals and other critical users (**PUE-IAMF#3**). In addition, prior to construction, the contractor will prepare a technical memorandum documenting how construction activities will be coordinated with service providers to minimize or avoid interruptions to utility services (**PUE-IAMF#4**). These project features will effectively minimize the utility interruptions by requiring coordination with service providers in advance, notifying the public and affected service providers of planned outages, and verifying that new facilities are operational prior to disconnecting the original facility.

Construction of the 26th Street LMF for Shared Passenger Track Alternative A would have the potential for 69 utility conflicts, but none require any relocations of utilities and all can be protected in place during construction, which minimizes the risk of utility interruptions.

Shared Passenger Track Alternative B

Impacts for Shared Passenger Track Alternative B would be similar to those described for Shared Passenger Track Alternative A. With the LMF at 15th Street, construction could result in planned temporary utility service interruptions, particularly in the city of Los Angeles where the 15th Street LMF would be located. The 15th Street LMF has potential conflicts with an additional 29 utilities, but a majority would be protected in place and construction would only require the relocation of five utilities: three storm sewers, one storm drain, and one overhead electrical line. These project relocations create greater potential impacts for utility disruption.

However, **PUE-IAMF#3** and **PUE-IAMF#4** will ensure that project impacts regarding planned temporary utility interruptions affecting the LMF at 15th Street are minimized.

High-Speed Rail Station Options

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

With inclusion of the Norwalk/Santa Fe Springs HSR Station Option, impacts would be the same as those of the Shared Passenger Track Alternatives within the station area. No additional utilities would be affected, but the length of duration would be longer to build the HSR platform, facilities, and parking, and therefore the length of temporary utility service interruptions in Norwalk or Santa Fe Springs during construction could be longer. However, **PUE-IAMF#3** and **PUE-IAMF#4** will ensure that project impacts regarding planned temporary utility interruptions are minimized.

High-Speed Rail Station Option: Fullerton

With inclusion of the Fullerton HSR Station Option, impacts would be the same as those of the Shared Passenger Track Alternatives within the station area. No additional utilities would be affected, but the length of duration would be longer to build the HSR platform, facilities, and parking, and therefore the length of temporary utility service interruptions in Fullerton during construction could be longer. However, **PUE-IAMF#3** and **PUE-IAMF#4** will ensure that project impacts regarding planned temporary utility interruptions are minimized.

CEQA Conclusion

The impact under CEQA from planned temporary interruptions of utility service during construction of the project would be less than significant. **PUE-IAMF#3** and **PUE-IAMF#4** are included as a part of the project during construction to effectively minimize impacts of temporary interruptions to utility services by requiring coordination with service providers in advance, notifying the public and affected service providers of planned outages, and verifying that new facilities are operational prior to disconnecting the original facility. The planned utility interruptions would be temporary and limited to short durations during construction, would not conflict with a major linear or nonlinear facility in a manner that would result in a lengthy or harmful interruption of service, and would not require the expansion of existing or construction of new infrastructure that could cause significant environmental impacts. Therefore, the impact from planned temporary interruptions to utility services would be less than significant under CEQA, and CEQA does not require mitigation.

Impact PU&E-2: Accidents and Disruption of Services

Shared Passenger Track Alternative A

Construction would not result in a conflict with a major linear or nonlinear facility. During construction of the project, including the LMF at 26th Street in Vernon, there would be a potential for accidental disruption of utility systems, including overhead utility lines (i.e., electric distribution lines, telephone lines, cable television lines) and buried utility lines (e.g., water, sewer, natural gas). However, accidental disruptions would be limited in occurrence and impacts would be short term as a result of the established practices for utility identification and notification. As described in **PUE-IAMF#4**, prior to construction, the contractor will prepare a technical memorandum documenting how construction activities will be coordinated with service providers to minimize or avoid interruptions. In addition, California Government Code Section 4216 establishes required procedures for identifying buried utilities prior to initiating excavation.

Accidental interruptions to utilities would be temporary and short term during construction. Therefore, the interruptions would not require the expansion of existing or construction of new infrastructure. Utility identification would be completed prior to commencement of construction in accordance with California Government Code Section 4216, thereby minimizing accidental utility interruptions.

Shared Passenger Track Alternative B

Impacts for Shared Passenger Track Alternative B would be the same as those described for Shared Passenger Track Alternative A. With the development of the LMF at 15th Street, there could be accidental disruption of utility services in the city of Los Angeles during construction. Utility identification would be completed prior to commencement of construction in accordance with California Government Code Section 4216, thereby minimizing accidental utility interruptions. **PUE-IAMF#4** will ensure that project impacts regarding accidental disruption of utility services during construction are minimized.

High-Speed Rail Station Options

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

With inclusion of the Norwalk/Santa Fe Springs HSR Station Option, impacts would be the same as those of the Shared Passenger Track Alternatives within the station area. No additional utilities would be affected, although the length of duration would be longer to build the HSR platform, facilities, and additional parking in Norwalk and Santa Fe Springs. However, **PUE-IAMF#4** will ensure that project impacts regarding accidental disruption of utility services during construction are minimized.

High-Speed Rail Station Option: Fullerton

With inclusion of the Fullerton HSR Station Option, impacts would be the same as those of the Shared Passenger Track Alternatives within the station area. No additional utilities would be affected, although the length of duration would be longer to build the HSR platform, facilities, and

additional parking in Fullerton. However, **PUE-IAMF#4** will ensure that project impacts regarding accidental disruption of utility services during construction are minimized.

CEQA Conclusion

The impact under CEQA from accidental disruption of utility services during construction of the project would be less than significant because the potential for accidental disruptions of utility services would be limited, and any impacts would be short term as a result of the established practices for utility identification and notification. Additionally, the contractor will prepare a technical memorandum documenting how construction activities will be coordinated with service providers, as included in **PUE-IAMF#4**. This coordination may result in the identification of new or additional infrastructure that would further reduce the potential for unforeseen service interruptions.

Construction would not result in a conflict with a major linear or nonlinear facility that would result in a lengthy or harmful interruption of service and would not require the expansion of existing or construction of new infrastructure, which could cause significant environmental impacts. Therefore, the impact of accidental disruption of services under CEQA would be less than significant, and CEQA does not require any mitigation.

Impact PU&E-3: Effects from Water Demand During Construction

Shared Passenger Track Alternative A

During the construction period for Shared Passenger Track Alternative A, water would be used to prepare concrete, optimize soil compaction, control dust, and reseed and establish vegetation in disturbed areas. Table 3.6-9 presents the estimated water usage for construction of the project, including at Anaheim Regional Transportation Intermodal Center (ARTIC), the 26th Street LMF, the Metrolink station modifications at Norwalk/Santa Fe Springs and Fullerton, and trackwork throughout the 30-mile project section. The 26th Street LMF location would account for 0.6 AFY of the total annual construction water use presented in Table 3.6-9. Refer to Appendix 3.6-A for a detailed breakdown of construction water use by project component. Water used during construction activities would be obtained from existing, permitted commercial sources, predominantly supplied by the water suppliers identified in Table 3.6-3. Although the overall project section construction timeline is estimated at 7 years, the most water-intensive construction activities are anticipated to occur over the first 5 of those years. The remaining 2 years would be used for operations testing and other preparations before operational service can begin. Therefore, the calculations for annual water usage rely on a 5-year construction use timeline.

Table 3.6-9 Construction Water Use by Activity for Shared Passenger Track Alternative A

Components	Construction Activity	Water Use		
		Annual Construction Use (acre-feet per year)[1]	Total Construction Use	
			Acre-Feet	Million Gallons
Project section trackwork, ARTIC, 26th St LMF, modifications to Norwalk/ Santa Fe Springs and Fullerton Metrolink Stations	Concrete work[2]	1.4	7.1	2.3
	Earthwork	10.8	54.0	17.6
	Dust control	78.4	392.2	127.8
	Total[3]	**90.7**	**453.2**	**147.7**

Source: STV 2025a, 2025b

[1] Baseline annual use calculated by applying water use demand factors for existing land use for track alignment, stations, light maintenance facility, and other associated facilities.

[2] The concrete volume for stations and light maintenance facilities was estimated by analyzing structure footprints and building characteristics.

[3] The total is the sum of the greatest water use estimates for the track alignments. It includes a 20 percent added contingency for trackwork shifting and the need for construction dust and compaction water requirements.

ARTIC = Anaheim Regional Transportation Intermodal Center; LMF = light maintenance facility; project section = Los Angeles to Anaheim Project Section

As discussed in Appendix 3.6-A, there would be a short-term increase in water demand as a result of construction activities. The Authority would implement **PUE-MM#1, Water Demand Analysis for Water Supplies for Construction and Operation**, to ensure that there are sufficient water supplies to support project construction. Within the public utilities and energy RSA, water is provided by 23 water suppliers. Water for construction of the project is anticipated to be supplied from existing surface or groundwater systems and water trucks may also be employed to provide water for dust control and compaction as well as mix water for concrete. Existing Urban Water Management Plans from the Los Angeles County Waterworks District and the Municipal Water District of Orange County suggest that adequate supplies exist under current projections to supply the temporary period of construction (LACWD 2021; MWDOC 2021). **PUE-MM#1** requires verification of the sourcing of construction water as more detailed project details are made available. Water use during construction would be in compliance with the Authority's water conservation guidance. For more information regarding water sources in the RSA, refer to Section 3.6.5.1, Public Utilities and Service Systems.

Shared Passenger Track Alternative B

Impacts for Shared Passenger Track Alternative B would be greater than those described for Shared Passenger Track Alternative A. There is an increase in anticipated water usage because of site-specific characteristics and project design at the 15th Street LMF, including the construction of three new yard lead tracks, which would start north of Seventh Street; three 7-foot-deep trenches for the lead tracks to cross under an overpass at Olympic Boulevard; and excavation of the northern half of the LMF site (approximately 25 acres). Table 3.6-10 indicates the estimated water usage for construction of Shared Passenger Track Alternative B, including at ARTIC, the 15th Street LMF, the Metrolink station modifications at Norwalk/Santa Fe Springs and Fullerton, and all construction along the 30-mile project section. The 15th Street LMF location would account for 1.4 AFY of the total annual construction use presented in Table 3.6-10. Overall, Shared Passenger Track Alternative B would require slightly more water during construction (an additional 4.2 AFY) as a result of building the 15th Street LMF; water use for all other project components would be the same as under Shared Passenger Track Alternative A. Water used during construction activities would be obtained from existing, permitted commercial sources, predominantly supplied by the 23 public water suppliers identified in Table 3.6-3.

Table 3.6-10 Construction Water Use by Activity for Shared Passenger Track Alternative B

Components	Construction Activity	Water Use		
		Annual Construction Use (acre-feet per year)[1]	Total 5-Year Construction Use	
			Acre-Feet	Million Gallons
Project section trackwork, ARTIC, 15th St LMF, modifications at Norwalk/ Santa Fe Springs and Fullerton Metrolink Stations	Concrete production[2]	1.5	7.3	2.4
	Earthwork	10.9	54.7	17.8
	Dust control	79.1	395.4	128.9
	Total[3]	**91.5**	**457.4**	**149.0**

Source: STV 2025a, 2025b

[1] Baseline annual use calculated by applying water use demand factors for existing land use for track alignment, stations, light maintenance facility, and other associated facilities.

[2] The concrete volume for stations and light maintenance facilities was estimated by analyzing structure footprints and building characteristics.

[3] The total is the sum of the greatest water use estimates for the track alignments. It includes a 20 percent added contingency for trackwork shifting and the need for construction dust and compaction water requirements.

ARTIC = Anaheim Regional Transportation Intermodal Center; LMF = light maintenance facility; project section = Los Angeles to Anaheim Project Section

As discussed in Appendix 3.6-A, there would be a short-term increase in water demand as a result of construction activities. The Authority would implement **PUE-MM#1** to ensure that there are sufficient water supplies to support project construction. **PUE-MM#1** requires verification of

the sourcing of construction water within the RSA as more detailed project details are made available.

High-Speed Rail Station Facility Options

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

With inclusion of the Norwalk/Santa Fe Springs HSR Station Option, water demand during construction would increase within the station area. Table 3.6-11 indicates the estimated water usage for construction of only the Norwalk/Santa Fe Springs HSR platform, facilities, and parking. Water used during construction activities would be obtained from existing, permitted commercial sources, predominantly supplied by Golden State Water Company.

Table 3.6-11 Construction Water Use by Activity for Norwalk/Santa Fe Springs High-Speed Rail Station Option

Construction Activity	Water Use		
	Annual Construction Use (acre-feet per year)[1]	Total 5-Year Construction Use	
		Acre-Feet	Million Gallons
Concrete production[2]	0.3	1.4	0.45
Earthwork	0.2	0.8	0.25
Dust control	4.9	24.6	8
Total[3]	**5.3**	**26.7**	**8.7**

Source: STV 2025a

[1] Baseline annual use calculated by applying water use demand factors for existing land use for station buildings, platforms, parking, and other associated facilities.

[2] The concrete volume for stations and light maintenance facilities was estimated by analyzing structure footprints and building characteristics.

[3] The total is the sum of the greatest water use estimates for the track alignments. It includes a 20 percent added contingency for trackwork shifting and the need for construction dust and compaction water requirements.

As discussed in Appendix 3.6-A, there would be a short-term increase in water demand as a result of construction activities. The Authority would implement **PUE-MM#1** to ensure that there are sufficient water supplies to support project construction, whether from Golden State Water Company or another source as necessary.

High-Speed Rail Station Option: Fullerton

With inclusion of the Fullerton HSR Station Option, water demand during construction would increase within the station area. Table 3.6-12 indicates the estimated water usage for construction of only the Fullerton HSR platform, facilities, and parking. Water used during construction activities would be obtained from existing, permitted commercial sources, predominantly supplied by the City of Fullerton.

Table 3.6-12 Construction Water Use by Activity for Fullerton High-Speed Rail Station Option

Construction Activity	Water Use		
	Annual Construction Use (acre-feet per year)[1]	Total 5-Year Construction Use	
		Acre-Feet	Million Gallons
Concrete production[2]	0.3	1.7	0.55
Earthwork	0.2	0.8	0.25
Dust control	5.0	24.9	8.1

Construction Activity	Water Use		
	Annual Construction Use (acre-feet per year)[1]	Total 5-Year Construction Use	
		Acre-Feet	Million Gallons
Total[3]	**5.5**	**27.3**	**8.9**

Source: STV 2025a
[1] Baseline annual use calculated by applying water use demand factors for existing land use for track alignment, station buildings, platforms, parking, and other associated facilities.
[2] The concrete volume for stations and light maintenance facilities was estimated by analyzing structure footprints and building characteristics.
[3] The total is the sum of the greatest water use estimates for the track alignments. It includes a 20 percent added contingency for trackwork shifting and the need for construction dust and compaction water requirements.

As discussed in Appendix 3.6-A, there would be a short-term increase in water demand as a result of construction activities. The Authority would implement **PUE-MM#1** to ensure that there are sufficient water supplies to support project construction, whether from the City of Fullerton or another source as necessary.

CEQA Conclusion

Although available data suggest adequate supplies are available from existing water suppliers in the region to supply the quantity of water needed for the limited construction period, given the rapidly and yearly changing climate conditions and unpredictability of water supply in Southern California, the impact under CEQA from water demand during construction would be significant. Therefore, mitigation is required. With implementation of **PUE-MM#1**, the impact under CEQA from water demand during construction of the project would be less than significant. Creation of a water analysis prior to construction will determine whether there are available supplies during normal, dry, and multiple dry years informed by up-to-date data. Preparation of this water analysis prior to construction would ensure that the temporary construction demand does not strain local suppliers or require any temporary expansion of existing or construction of new infrastructure that could cause environmental impacts. Refer to Section 3.6.7.1, PUE-MM#1: Water Demand Analysis for Water Supplies for Construction and Operation, for more information on the implementation of the mitigation efforts for construction water demand.

Impact PU&E-4: Effects on Stormwater Infrastructure During Construction

Shared Passenger Track Alternative A

Construction activities such as grading and excavation could redirect stormwater runoff by altering the existing drainage pattern. Soil would be compacted during ground-disturbing activities, resulting in a decrease in infiltration and an increase in the volume and rate of stormwater runoff, which could exceed the capacity of storm drains and stormwater facilities during storm events. For Shared Passenger Track Alternative A involving construction of the 26th Street LMF, these impacts could be experienced more in the surrounding land in Vernon. Effects related to stormwater infrastructure would be temporary and limited to the construction phase. Impacts on stormwater runoff are described further in Section 3.8.

The project will incorporate a SWPPP and construction best management practices (**HYD-IAMF#1**, **HYD-IAMF#2**, and **HYD-IAMF#3**) to avoid or minimize erosion and sedimentation from increased rates and volumes of flows. Temporary and permanent best management practices, such as sediment traps, velocity dissipation devices like check dams and outfall protection, and detention/retention/infiltration facilities, would be incorporated into the temporary drainage design plans as necessary to reduce short-term increases in sediment transport and minimize temporary changes in alteration of the natural flow during construction.

Shared Passenger Track Alternative B

Impacts for Shared Passenger Track Alternative B would be similar to those described for Shared Passenger Track Alternative A. Because Shared Passenger Track Alternative B involves the construction of the 15th Street LMF in the city of Los Angeles, effects related to stormwater could

be experienced more in areas adjacent to the 15th Street LMF. **HYD-IAMF#1**, **HYD-IAMF#2**, and **HYD-IAMF#3** will minimize stormwater runoff during construction.

High-Speed Rail Station Options

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

With inclusion of the Norwalk/Santa Fe Springs HSR Station Option, impacts would be the same as those of the Shared Passenger Track Alternatives within the station area. Construction of the HSR facilities and additional parking would be within the same area that would be modified under the Shared Passenger Track Alternatives, with the same amount of grading and excavation. Incorporation of **HYD-IAMF#1**, **HYD-IAMF#2**, and **HYD-IAMF#3** will minimize stormwater runoff during construction.

High-Speed Rail Station Option: Fullerton

With inclusion of the Fullerton HSR Station Option, impacts would be similar to those of the Shared Passenger Track Alternatives within the station area. Construction of the HSR facilities and additional parking would alter up to 10 additional acres of land from grading and excavation activities and further alter the existing drainage pattern in the project area, resulting in additional stormwater. However, **HYD-IAMF#1**, **HYD-IAMF#2**, and **HYD-IAMF#3** will minimize impacts related to stormwater runoff during construction.

CEQA Conclusion

The impact under CEQA on stormwater facilities during construction of the project would be less than significant. **HYD-IAMF#1**, **HYD-IAMF#2**, and **HYD-IAMF#3** are included as a part of the project and will effectively avoid or minimize temporary hydraulic impacts associated with construction activities. The IAMF will address impacts from stormwater during construction activities through preparation and incorporation of a construction SWPPP and construction best management practices to maintain preproject hydrology and manage the amount of stormwater runoff from construction sites and therefore avoid the project contributing to exceedances of capacity of stormwater drains and stormwater facilities during storm events. Therefore, the impact on stormwater infrastructure during construction would be less than significant, and CEQA does not require mitigation.

Impact PU&E-5: Effects from Waste Generation During Construction

Shared Passenger Track Alternative A

Construction of the project would generate construction-related solid and hazardous waste. Solid waste would come from the removal of existing asphalt and gravel and demolition of existing structures. Given the urban nature of the corridor, the clearing of vegetation is assumed to be minimal and did not factor into estimates because most of the construction area consists of impervious surfaces.

Construction near sites of potential environmental concern or Cortese list sites could generate hazardous waste from excavated soil. It may be feasible to avoid disturbing contaminants during construction on most off-site potential environmental concern sites by following stipulations in the Construction Management Plan being prepared as part of **HMW-IAMF#4, Known, Suspected, and Unanticipated Environmental Contamination**; and **GEO-IAMF#3, Gas Monitoring**, including those stipulations related to demolition procedures. However, there are contaminated sites like the Orange County North Basin (groundwater plume covering approximately 8 square miles that overlaps with portions of the project alignment and the Fullerton HSR Station Option) and Exide site in Vernon that overlap where the 26th Street LMF would be built. These sites would be disturbed to build the project section. Where work at potential environmental concern sites cannot be avoided, including those subject to cleanup, coordination with regulatory agencies such as the Department of Toxic Substances Control would be required before construction could advance.

Construction would also generate hazardous waste consisting of welding materials, fuel and lubricant containers, paint and solvent containers, treated wood, and cement products that

contain strong basic or acidic chemicals. Demolition of older buildings could also generate hazardous waste, such as asbestos-containing materials and lead-based paint.

As discussed in Section 3.10, the Authority would handle, store, and dispose of all hazardous waste in accordance with applicable requirements, including the Resource Conservation and Recovery Act. A certified hazardous waste collection company would deliver the waste to an authorized hazardous waste management facility for recycling or disposal. The transport, use, and disposal of construction-related hazardous materials and wastes would be subject to state and federal regulations described in Section 3.10.2, Laws, Regulations, and Orders, of Section 3.10. All hazardous materials, soils, drums, trash, and debris generated during construction would be handled and disposed of in accordance with these regulations. Refer to Section 3.10 for a full analysis of treatment and disposal of hazardous waste for the project section.

The 2022 Green Building Standards Code (Part 11, Title 24, of the California Code of Regulations) requires every city and county in California to develop a waste management plan and divert at least 50 percent of the construction materials generated. As standard construction practice, the contractor would divert C&D waste from landfills by reusing or recycling to aid with implementing the Local Government C&D Guide (SB 1374) and to meet solid waste diversion goals to the extent practicable. The contractor would either segregate or recycle the solid and hazardous waste at a certified recycling facility or contract with an authorized agent to collect mixed waste and dispose of it at a certified recycling facility. The Authority's 2020 Sustainability Policy specifies that all steel and concrete will be recycled, and a minimum of 85 percent of construction solid and hazardous waste will be diverted from landfills. Landfills to which C&D material from the project would be sent would be identified by the contractor prior to the start of construction. Each landfill has specific requirements regarding the acceptance of hazardous wastes and C&D material, which may influence the selection of disposal sites.

Building demolition waste was estimated based on building type and surface area of buildings from parcels identified for full acquisition. No landfill within the public utilities RSA accepts hazardous wastes. Two Class I landfills active in California are Buttonwillow in Kern County and Kettleman Hills in Kings County. These respective Class I landfills accept both hazardous and nonhazardous wastes. These landfills are more than 100 miles north-northwest of the northern terminus at U.S. Highway 101.

Construction of the project would generate an estimated 1.74 million cubic yards of solid and hazardous waste within Los Angeles and Orange Counties: 752,496 cubic yard from demolition of buildings and 982,835 cubic yards from earthwork and excavation. Initial estimates for hazardous waste indicate that the likelihood of encountering contaminated soils at different project components varies based on the proximity to known hazardous release sites. Construction of the 26th Street LMF presents a high likelihood of encountering contaminated soils (80–100 percent), construction of the modified Norwalk/Santa Fe Springs Metrolink station presents a low-moderate likelihood (20–40 percent), construction of the modified Fullerton Metrolink/Amtrak Station presents a moderate to high likelihood (60–80 percent), construction at ARTIC presents a low likelihood (0–20 percent), and construction of the Fullerton Trench presents a low likelihood (0–20 percent) (refer to the *Los Angeles to Anaheim Project Section Supplement to the Hazardous Materials and Wastes Technical Report* [Authority 2025a] for more information). The Authority's 2020 Sustainability Policy specifies that all steel and concrete will be recycled, and a minimum of 85 percent of construction solid and hazardous waste will be diverted from landfills, so a conservative estimate of 15 percent of all waste produced from demolition was assumed to be hazardous (Authority 2020a). Table 3.6-13 presents estimated solid waste capacity for landfills in the RSA and Table 3.6-14 presents hazardous waste capacity for the two Class I landfills. Of the eight landfills in the RSA that could be used for (nonhazardous) solid waste disposal and the two Class I landfills, all have adequate capacity to dispose of solid waste during construction of the project.

Table 3.6-13 Solid Nonhazardous Waste Capacity in the Los Angeles to Anaheim Project Section

Facility	Location	Remaining Capacity (cubic yards)	Percent of Landfill Capacity Used by HSR[1]	Sufficient Remaining Capacity?
Sunshine Canyon City County Landfill	Sylmar	60,070,000	3	Yes
Burbank Landfill Site No. 3	Burbank	4,180,000	36	Yes
Scholl Canyon Sanitary Landfill	Glendale	2,030,000	75	Yes
Calabasas Landfill	Calabasas	6,780,000	22	Yes
Olinda Alpha Sanitary Landfill	Brea	17,500,000	9	Yes
Frank R. Bowerman Sanitary Landfill	Trabuco Canyon	160,896,082	1	Yes
Prima Deshecha Sanitary Landfill	San Juan Capistrano	128,800,000	1	Yes
Savage County Landfill	Whittier	4,280,000	35	Yes
Total Remaining Landfill Capacity		**428,106,082**	**<1**	**Yes**

Sources: CalRecycle 2023a, 2023b, 2023c, 2023d, 2023e, 2023f, 2023g, 2023h, 2023i
[1] Calculated using 1,513,077 cubic yards as the estimated amount of nonhazardous waste from earthwork and demolition construction activities for Shared Passenger Track Alternative A.
HSR = high-speed rail

Table 3.6-14 Hazardous Waste Capacity Available to the Los Angeles to Anaheim Project Section

Facility	Location	Remaining Capacity (cubic yards)	Percent of Landfill Capacity Used by HSR[1]	Sufficient Remaining Capacity?
Kettleman Hills Facility	Kettleman City	2,880,000	8	Yes
Clean Harbors Landfill (Buttonwillow), Landfill	Buttonwillow	7,750,000	3	Yes
Total Remaining Landfill Capacity		11,626,816	2	**Yes**

Sources: County of Kern 2024; DTSC 2024
[1] Calculated using 222,254 cubic yards as the estimated amount of hazardous waste from earthwork and demolition construction activities for Shared Passenger Track Alternative A.
HSR = high-speed rail

As discussed in Section 3.10, the Authority's contractor would handle, store, and dispose of hazardous waste in accordance with applicable requirements, including the Resource Conservation and Recovery Act. A certified hazardous waste collection company will transport the waste to an authorized hazardous waste management facility for recycling or disposal (**HMW-IAMF#7**).

The amount of waste generated would be minimized through reuse and recycling, as directed in the Sustainability Policy Directive (Authority 2020a). Following reuse or recycling, anticipated HSR solid waste disposal volumes destined for county and municipal facilities would be considered in the mandated 5-year Countywide Siting Element review process (County of Los Angeles 2022), along with other prospective sources, and eventually included in the affected Integrated Waste Management Plan documentation. The project would comply with federal, state, and local statutes and regulations related to solid waste, and there is sufficient permitted capacity at the landfills serving the project to accommodate solid waste disposal needs. The temporary

increase in solid waste during construction would not substantially affect capacity at an existing landfill in the RSA or cause a landfill to reach capacity before its projected closure date.

Shared Passenger Track Alternative B

Impacts for Shared Passenger Track Alternative B involving construction and development of the 15th Street LMF would be greater than those of Shared Passenger Track Alternative A. Shared Passenger Track Alternative B is estimated to produce approximately 1.83 million cubic yards of waste during construction, composed of 743,236 cubic yards from the demolition of buildings and 1.08 million cubic yards from earthwork and excavation. Shared Passenger Track Alternative B has the same likelihood of encountering contaminated soils during earthwork, except that the 15th Street LMF has a lower likelihood (low-moderate, 20–40 percent) compared to the 26th Street LMF (Shared Passenger Track Alternative A). Table 3.6-13 details how the landfills serving the project section have adequate capacity to serve the project. Additionally, **HMW-IAMF#7** will ensure that the amount of waste generated will be minimized through reuse and recycling, as directed in the Sustainability Policy Directive.

High-Speed Rail Station Options

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

With inclusion of the Norwalk/Santa Fe Springs HSR Station Option, the impacts would be similar to those of the Shared Passenger Track Alternatives within the station area for the Metrolink station modifications. Construction of the HSR station platform, facilities, and parking would be within the same area that would be modified under the Shared Passenger Track Alternatives, and the same clearing, demolition, and excavation activities would occur. Construction of the additional HSR station elements would not generate additional construction-related solid and hazardous waste.

High-Speed Rail Station Option: Fullerton

With inclusion of the Fullerton HSR Station Option, impacts would be similar to those of the Shared Passenger Track Alternatives within the station area for the Metrolink station. Construction of the HSR station platform, facilities, and parking would generate an additional 33,874 cubic yards of construction-related demolition and soil export, including hazardous waste soil export. Refer to Section 3.10 for a full analysis of treatment and disposal of hazardous waste for the project.

The Olinda Alpha Landfill serves Fullerton and would serve the project site (City of Fullerton 2020). As detailed in Table 3.6-15, the Olinda Alpha Landfill has adequate capacity to serve this portion of the project's construction activity. Additionally, **HMW-IAMF#7** will ensure that the amount of waste generated will be minimized through reuse and recycling, as directed in the Sustainability Policy Directive.

Table 3.6-15 Solid Waste Capacity for Fullerton High-Speed Rail Station Option

Facility	Location	Remaining Capacity (cubic yards)	Percent of Landfill Capacity Used by Station[1]	Sufficient Remaining Capacity?
Olinda Alpha Sanitary Landfill	Brea	17,500,000	<1	Yes

Source: CalRecycle 2023i
[1] Calculated using 24,000 cubic yards as the estimated amount of soil export from construction activities for the Fullerton High-Speed Rail Station Option.

CEQA Conclusion

The impact under CEQA from temporary solid waste generation during construction of the project would be less than significant because solid waste facilities within the RSA and hazardous waste facilities in Southern California would have sufficient permitted capacity to accept solid and hazardous waste generated by project construction. The project would result in the disposal of

1.74 million cubic yards total of solid and hazardous waste for Shared Passenger Track Alternative A, and 1.83 million cubic yards for Shared Passenger Track Alternative B. From the likelihood of encountering contaminated soils during earthwork presented in the *Los Angeles to Anaheim Project Section Supplement to the Hazardous Materials and Wastes Technical Report* (Authority 2025a) and by assuming 15 percent of total demolition volume would be Class I/II contaminated waste, the hazardous waste anticipated for the project is an estimated 222,254 cubic yards for Shared Passenger Track Alternative A and 250,865 cubic yards for Shared Passenger Track Alternative B. The hazardous waste anticipated from earthwork is tentative and subject to change after more-detailed analysis and completion of site surveys; therefore, it cannot be reliably or precisely calculated at this time. There would not be more hazardous waste than the total amount of solid waste, and there is sufficient capacity at facilities in the RSA and the region to handle disposal of all solid and hazardous waste. The exact disposal location(s) for hazardous waste will be determined prior to the commencement of project construction in accordance with available facility capacity and all relevant state, federal, and local regulations concerning the treatment and disposal of hazardous waste. Refer to Section 3.10 for a full analysis of treatment and disposal of hazardous waste for the project section.

Ultimately, construction of the project would not generate solid waste in excess of state or local standards and would not impair the attainment of state or local solid waste reduction goals. **HMW-IAMF#7** will ensure that the amount of waste generated will be minimized through reuse and recycling, as directed in the Sustainability Policy Directive. Furthermore, **HMW-IAMF#4** will create a soil management plan prior to construction that will monitor for contaminated soils and provide a plan for cleanup, as needed, and **GEO-IAMF#3** will incorporate gas monitoring into a construction management plan. Therefore, the impact from waste generation during construction would be less than significant, and CEQA does not require mitigation.

Impact PU&E-6: Conflicts with Existing Utilities

Shared Passenger Track Alternative A

Construction of Shared Passenger Track Alternative A is anticipated to result in conflicts with existing utilities during construction. In many cases, conflicts would stem from existing buried utility lines (water supply pipelines, gas lines, and electrical lines) in areas that would require excavation to support various HSR facilities, including stations, maintenance facilities, elevated structures, railbeds, or below-ground tracks. In addition, conflicts are anticipated to result from existing aboveground or overhead transmission lines. Table 3.6-16 and Table 3.6-17 identify potential conflicts between existing major and high-risk utilities of the project that are either abandoned or need to be relocated or removed for HSR operations. There are additional utility conflicts that will need to be protected in place or do not fall under the categories of major or high-risk. Locations of all potential utility conflicts are illustrated in engineering drawings contained in the PEPD (Authority 2025b).

Shared Passenger Track Alternative A would avoid, protect, or relocate potentially affected existing utility infrastructure, of which there are 978 points of potential conflict for Shared Passenger Track Alternative A. Pursuant to utility agreements negotiated between the Authority and the utility owners, the Authority would work with utility owners during final engineering design and construction of the project to relocate (264) utilities, protect them in place (692), or to remove the utility structure (21). In instances where utility structures have been found to be abandoned (1), the Authority will avoid these areas and follow methods to protect them in place. Where overhead distribution lines cross the project, the Authority and the utility owner may determine that it is best to place the line underground. In that case, the distribution line would be placed in a conduit. Where existing underground utilities, such as gas, petroleum, and water pipelines, cross the HSR right-of-way, the affected utilities would be placed in a protective casing. Construction of pump stations may also be necessary to provide adequate water pressure for emergency situations; these would be connected to existing water lines. The construction contractor will coordinate schedules for utility relocations, new connections, and protection in place with the utility owner to ensure that the project will not result in prolonged disruption of services (**PUE-IAMF#3**). If utilities cannot be relocated or modified within the right-of-way or the project

footprint, additional environmental analysis would be conducted, if necessary. In compliance with state law (California Government Code Section 4216), the construction contractor would use a utility locator service and manually probe for buried utilities within the right-of-way prior to initiating ground-disturbing activities. This would avoid accidental disruption of utility services. Transmission lines between the transmission power supply stations and the existing substations would be improved or built aboveground to industry standards and would not substantially conflict with services provided by existing infrastructure.

The IAMFs are incorporated into the project to minimize utility interruptions by requiring coordinating with service providers in advance, notifying the public and affected service providers of planned outages, and verifying that new facilities are operational prior to disconnecting the original facility (**PUE-IAMF#3** and **PUE-IAMF#4**).

Table 3.6-16 presents the high-risk utilities that would need to be relocated for construction of Shared Passenger Track Alternative A. Table 3.6-17 presents the remaining major utility conflicts that would need to be relocated for the construction of Shared Passenger Track Alternative A.

Table 3.6-16 High-Risk Utility Conflicts for Shared Passenger Track Alternative A Requiring Relocation

City	Underground Electrical Lines	Natural Gas Distribution Lines	Petroleum and Fuel Pipelines	Sanitary Sewer Mains	High-Pressure Water Lines	High-Voltage Electrical Lines[1]
Los Angeles	--	--	--	--	--	--
Vernon	--	--	--	--	--	--
Pico Rivera	--	22	33	11	19	20
Norwalk	--	1	--	--	--	1
Norwalk/Santa Fe Springs	4	5	37	9	12	9
Santa Fe Springs	--	1	1	--	--	--
Santa Fe Springs/La Mirada	--	--	--	1	--	--
La Mirada	--	--	--	1	--	--
Buena Park	2	2	--	--	2	2
Buena Park/Fullerton	2	4	2	--	1	1
Fullerton	--	--	--	2	2	--
Anaheim	4	1	--	2	2	2
Total	**12**	**36**	**73**	**27**	**38**	**35**

[1] High-voltage electrical lines that are over 60 kilovolts are considered high risk.
Source: Authority 2025b; STV 2024b,
-- = No conflicts requiring alterations for high-speed rail operations are known at this time, based on available geographic information systems data.

Table 3.6-17 Major Utility Conflicts for the Shared Passenger Track Alternative A Requiring Relocation

City	Streetlights	Wastewater Lines	Water Conduits	Communication Lines or Cables	Storm Drains
Los Angeles	--	--	--	3	1
Vernon	--	--	--	2	--
Pico Rivera	--	--	--	1	5
Norwalk	--	--	--	--	--
Norwalk/Santa Fe Springs	--	--	--	--	--
Santa Fe Springs	--	--	--	2	8
Santa Fe Springs/La Mirada	--	--	--	--	--
La Mirada	--	1	--	4	--
Buena Park	--	--	1	1	2
Buena Park/Fullerton	--	--	1	--	--
Fullerton	--	--	--	--	4
Anaheim	2	--	--	1	3
Total	**2**	**1**	**2**	**14**	**23**

Source: Authority 2025b; STV 2024b
-- = No conflicts requiring alterations for high-speed rail operations are known at this time, based on available geographic information systems data.
≥ = greater than or equal to Potential Conflicts with Electrical Facilities

Table 3.6-16 and Table 3.6-17 identify potential conflicts between existing electrical facilities and the project. In the event that an electrical distribution line must be relocated, the relocation would be done in coordination and cooperation with the utility owner so that relocation would not result in prolonged disruption of services, loss of access to public utility lines or conduits, or reduced access. Electrical lines between the TPSSs that would power the rail line and the existing power substations would be built aboveground and to industry standards.

The relocation of electrical utilities is included in the analysis of the project footprint. Utility relocations within the project footprint would be consistent with the types of construction effects being analyzed. Pursuant to utility agreements negotiated between the Authority and the utility owners, the Authority would work with the owners of the transmission lines, power poles, and substations during final engineering design and construction of the project to relocate these transmission lines, power poles, and substations or protect them in place. Where electrical distribution lines cross the project section, the Authority and the electrical facility owner may determine that it is best to place the line underground. In that case, the line would be placed in a conduit so that future maintenance of the electric lines can be accomplished from outside the HSR right-of-way.

Potential Conflicts with Natural Gas Lines (High Pressure)

Table 3.6-16 and Table 3.6-17 identify potential conflicts between existing high-pressure natural gas lines and the project. Locations of these conflicts are illustrated in engineering drawings contained in the PEPD (Authority 2025b). These conflicts could require permanent relocation of the gas lines and result in service disruptions. Pursuant to utility agreements negotiated between the Authority and the utility owners, the Authority would work with natural gas pipeline owners to place affected lines underground in a protective casing or, in some cases, reroute portions of the

pipeline to avoid direct impacts. Relocation or encasement would be necessary so that future maintenance of the pipelines can be accomplished from outside the HSR right-of-way.

Construction related to natural gas line relocations would require directional drilling, and the roadways would likely be temporarily reduced to one lane. For more information regarding construction-related road closures and detours, please refer to Sections 3.11 and 3.2 of this EIR/EIS.

Relocation of natural gas pipelines would not require expansion of existing infrastructure. The project would not result in prolonged disruption of services or permanent loss of access to natural gas pipelines in the RSA.

Potential Conflicts with Petroleum and Fuel Pipelines

Table 3.6-16 and Table 3.6-17 identify potential conflicts between existing petroleum or fuel pipelines and the project, resulting in relocation of the pipelines and temporary service disruption. Locations of these conflicts are illustrated in engineering drawings contained in the PEPD (Authority 2025b). The Authority would work with fuel pipeline owners to place affected pipelines underground in a protective casing or, in some cases, reroute portions of the pipeline to avoid direct effects and minimize conflicts during future maintenance of the pipelines.

Relocation of petroleum and fuel pipelines would not require expansion of existing infrastructure. The project would not result in prolonged disruption of services or permanent loss of access to fuel pipelines in the RSA.

Potential Conflicts with Communication Facilities

Table 3.6-17 identifies potential conflicts between existing communication facilities and the project. Because of the low risk associated with these potential conflicts, relocation would result in short-term impacts. The Authority would work with communication companies to place affected lines underground in conduits or, in some cases, reroute portions of the communication lines to avoid direct impacts or minimize conflicts during future maintenance of the lines. Design measures will be implemented to ensure that maintenance can be accomplished from outside the HSR right-of-way (**PUE-IAMF#1** and **PUE-IAMF#4**).

The relocation of communication facilities would not require the expansion of existing or construction of new infrastructure. The project would not result in prolonged disruption of services or permanent loss of access to communication facilities in the RSA.

Potential Conflicts with Water Facilities

Table 3.6-16 and Table 3.6-17 identify potential conflicts between water-related infrastructure and the project. Locations of these conflicts are illustrated in engineering drawings contained in the PEPD (Authority 2025b). These conflicts could result in facility relocation and temporary service disruption. Portions of the project section would be on an elevated guideway. Where the guideway would be elevated, it is likely that disturbance to water infrastructure and facilities would be avoided during final engineering design for the placement of columns. The Authority would work with the appropriate city public works department or water district to relocate affected pipelines and water facilities away from HSR support columns. For at-grade locations, it may be necessary to relocate some facilities. Construction of pump stations may also be necessary to provide adequate water pressure for emergency situations; the pump stations would be connected to existing water lines. The Los Angeles County Sanitation Districts responded to the Notice of Preparation to express that the project section may affect existing or proposed Los Angeles County Sanitation Districts facilities, such as trunk sewers and recycled water lines (LACSD 2024). The Authority will coordinate with the Los Angeles County Sanitation Districts for the necessary approval and permitting before construction begins. The construction contractor will coordinate schedules for necessary infrastructure relocations or new connections as well as necessary protection-in-place actions with the appropriate agencies and districts (**PUE-IAMF#4**). Therefore, the project would not result in prolonged disruption of water-related services, loss of access to water facilities, or reduced access to water facilities in the RSA.

The relocation of water-related facilities would not require the expansion of existing infrastructure. The IAMFs are included as a part of the project to effectively minimize disruptions to existing utility operations by requiring coordinating with the agencies and districts in advance, notifying the public and affected agencies and districts of planned disruptions, and verifying that new facilities are operational prior to disconnecting the original facility (**PUE-IAMF#3** and **PUE-IAMF#4**).

Shared Passenger Track Alternative B

Impacts for Shared Passenger Track Alternative B would be similar to those of Shared Passenger Track Alternative A, except that the project would develop the 15th Street LMF instead of the 26th Street LMF that is part of Shared Passenger Track Alternative A. The 15th Street LMF for Shared Passenger Track Alternative B would result in five additional major and high-risk utility conflicts in the city of Los Angeles that require relocation (three sewers, one storm drain, and one overhead electrical line), and twenty-four additional utility conflicts that would require protection in place (for full details of locations of utility conflicts, refer to the PEPD). Table 3.6-16 and Table 3.6-17 identify potential conflicts between existing major and high-risk utilities of the project. However, **PUE-IAMF#3** and **PUE-IAMF#4** will effectively minimize impacts of temporary interruptions to utility services by requiring coordination with service providers in advance, notifying the public and affected service providers of planned outages, and verifying that new facilities are operational prior to disconnecting the original facility.

High-Speed Rail Station Options

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

With inclusion of the Norwalk/Santa Fe Springs HSR Station Option, impacts would be the same as those for the Shared Passenger Track Alternatives within the station area. Construction of the HSR platform, facilities, and parking would not create utility conflicts additional to those identified for the Shared Passenger Track Alternatives in this area, which is one underground oil pipeline owned by Union Oil that would need to be relocated (refer to Table 3.6-16 and Table 3.6-17). **PUE-IAMF#3** and **PUE-IAMF#4** will effectively minimize impacts of temporary interruptions to utility services by requiring coordination with service providers in advance, notifying the public and affected service providers of planned outages, and verifying that new facilities are operational prior to disconnecting the original facility.

High-Speed Rail Station Option: Fullerton

With inclusion of the Fullerton HSR Station Option, impacts would be similar to those of the Shared Passenger Track Alternatives within the station area. Construction of the HSR station elements, including a pedestrian underpass, would result in an additional five utility conflicts that would need to be protected in place: two storm drains, two sewer conduits, and one water conduit. All other utility conflicts identified within the station area would be the same as those affected by the Shared Passenger Track Alternatives. **PUE-IAMF#3** and **PUE-IAMF#4** will effectively minimize impacts of temporary interruptions to utility services by requiring coordination with service providers in advance, notifying the public and affected service providers of planned outages, and verifying that new facilities are operational prior to disconnecting the original facility.

CEQA Conclusion

The impact under CEQA on existing utilities during construction of the project would be less than significant. **PUE-IAMF#1**, **PUE-IAMF#3**, and **PUE-IAMF#4** are included as part of the project during design and construction to effectively minimize impacts of temporary interruptions to utility services by requiring coordination with service providers in advance, notifying the public and affected service providers of planned outages, and verifying that new facilities are operational prior to disconnecting the original facility and will ensure that utility interruptions are minimized or avoided and that the public is notified of any expected utility interruptions. Therefore, construction of the project would not result in lengthy and harmful interruption of service, impacts on utility service providers or customers, or the construction or relocation of facilities, which could cause significant environmental effects. It would not require or result in any disruptions to existing utility operations or conflicts involving new or expanded water, wastewater treatment, or stormwater

drainage, electric power, natural gas, or telecommunications facilities. Therefore, CEQA does not require mitigation.

Impact PU&E-7: Reduced Access to Existing Utilities in the High-Speed Rail Right-of-Way During Construction

Shared Passenger Track Alternative A

Construction activities associated with Shared Passenger Track Alternative A could result in permanent reduced access to existing utilities within the HSR right-of-way. The HSR right-of-way would be permanently fenced and secured during construction. For those utilities remaining within the right-of-way, maintenance access by utility owners would be controlled. It is common practice for utility districts to coordinate and schedule in advance field visits to their facilities with the owner of the property within which their facilities lie.

Underground utilities that conflict with the HSR right-of-way would be relocated or reinforced underneath the HSR right-of-way inside a casing pipe. Utilities that remain in the HSR right-of-way would be placed in a casing pipe strong enough to carry the HSR system facilities and large enough to accommodate equipment for remote monitoring of the pipe's condition. Should a conveyance pipeline need repair or replacement, the casing pipe would remain in place so that HSR operations could continue while work is performed. It is common practice for utility districts to coordinate and schedule field visits to their facilities with the affected property owner in advance of a visit (Authority 2015). This practice would avoid limits or restrictions on access to existing utilities in the HSR right-of-way.

Reduced access to existing utilities during and after construction would not require expansion of existing or construction of utility infrastructure. **PUE-IAMF#3** and **PUE-IAMF#4** would be incorporated to address utility owners' access needs, thereby protecting continued access during and after construction by coordinating and scheduling field visits with the property owner in advance.

Shared Passenger Track Alternative B

Impacts for Shared Passenger Track Alternative B would be the same as those of Shared Passenger Track Alternative A, accounting for additional utility conflicts that are present at the LMF location at 15th Street. Standard practices for working with utilities to access any facilities affected by the project will also apply at the 15th Street LMF. The incorporation of **PUE-IAMF#3** and **PUE-IAMF#4** would address utility owner's access needs in perpetuity.

High-Speed Rail Station Options

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

With inclusion of the Norwalk/Santa Fe Springs HSR Station Option, impacts would be the same as those of the Shared Passenger Track Alternatives within the station area. Construction of the HSR platform, facilities, and parking would be within the same area that would be modified under the Shared Passenger Track Alternatives. The HSR right-of-way would be permanently fenced and secured during construction. The project would follow common practice of utility districts to coordinate and schedule field visits to their facilities, which would provide sufficient access and avoid problematic limits or restrictions on access to existing facilities.

High-Speed Rail Station Option: Fullerton

With inclusion of the Fullerton HSR Station Option, impacts would be similar to those of the Shared Passenger Track Alternatives within the station area. The HSR right-of-way would be permanently fenced and secured during construction. The project would follow common practice of utility districts to coordinate and schedule field visits to their facilities, which would provide sufficient access and avoid problematic limits or restrictions on access to existing facilities. For the five utility conflicts caused by project construction in Fullerton in relation to the HSR station elements, the project would protect in place the utilities where they are still accessible.

CEQA Conclusion

The impact under CEQA from reduced access to existing utilities during construction of the project would be less than significant for utilities remaining in the right-of-way because the common practice of utility districts is to coordinate and schedule field visits to their facilities, which would provide sufficient access and avoid problematic limits or restrictions on access to existing facilities. Based on this common practice, project construction would not result in lengthy or harmful interruptions of service because of reduced access or require the construction of new utility facilities or expansion of upgrade of existing utility facilities that could cause significant environmental impacts. **PUE-IAMF#3** and **PUE-IAMF#4** would also be incorporated to address utility owners' access needs, thereby protecting continued access during and after construction by coordinating and scheduling field visits with the property owner in advance. Therefore, the impact from reduced access during construction would be less than significant and CEQA does not require mitigation.

Impact PU&E-8: Effects from Upgrade or Construction of Power Lines

Shared Passenger Track Alternative A

The HSR system would draw power from California's existing electricity grid; power would be distributed to trainsets via an overhead contact system.[5] Shared Passenger Track Alternative A would not include the construction of a separate power source, although it would include the extension of power lines to a series of power substations positioned along the railroad corridor and require the addition of a new receiver station within LADWP property to accommodate electrical service to the project section. The transformation and distribution of electricity would occur in three types of facilities in the project section:

- TPSSs transform high-voltage electricity supplied by public utilities to the train operating voltage. TPSSs would be adjacent to existing utility transmission lines and the right-of-way and would be approximately every 30 miles along the route.
- Switching stations connect and balance the electrical load between tracks and switch overhead contact system power on or off in the event of a power outage or emergency. Switching stations would be midway between pairs of TPSS. Each switching station would be adjacent to the HSR right-of-way.
- Paralleling stations, or autotransformer stations, provide voltage stabilization and equalize current flow. Paralleling stations would be no fewer than 5 miles between the TPSSs and the switching stations. Each paralleling station would be adjacent to the right-of-way.

Table 3.6-18 lists proposed TPSS, switching stations, and paralleling stations.

Table 3.6-18 Traction Power Station Locations in the Project Section

Traction Power Station Type	Location
Traction power substations (two sites)	City of Los Angeles: South of Washington Blvd and west of Soto St in Los Angeles, adjacent to the existing railroad viaduct City of Anaheim: On the northeast corner of Lewis St and Cerritos Ave, southwest of the HSR tracks
Paralleling stations (two sites)	City of Montebello: Southwest corner of Maple Ave and Sycamore St, south of the HSR tracks (co-located with the relocated Commerce Metrolink Station) City of Fullerton: Northwest corner of Dale St and Artesia Ave, south of the HSR tracks

[5] The overhead contact system is part of the traction power electrification system, which supplies electric energy coming from a TPSS to non-self-powered rail vehicles operating beneath the overhead wires through roof-mounted current-collection equipment.

Traction Power Station Type	Location
Switching station	City of Santa Fe Springs: Northeast corner of Los Nietos Rd and Santa Fe Springs Rd, north of BNSF Railway tracks

Source: Authority 2025b
HSR = high-speed rail

As listed in Table 3.6-18, the approximately 30-mile project section would require two TPSSs. The first TPSS would be in the city of Los Angeles along Washington Boulevard, on the east bank of the Los Angeles River. The second TPSS would be in Anaheim, near the intersection of Lewis Street and Cerritos Avenue, south of the HSR alignment. The utility provider for the Los Angeles TPSS site would be LADWP, and Anaheim Public Utilities would be the provider for the Anaheim TPSS site. In the absence of formal agreements between the Authority and both utility providers, assumptions about capacity and site access have been made.

Typical impacts associated with the construction of new or upgraded electrical distribution infrastructure include impacts on traffic circulation because of detours or road closures required for construction, impacts associated with ground-disturbing activities for construction of new transmission towers, and short-term electrical service disruptions. For the LADWP substation, the project would require modifying the TPSS to add a new receiver station within its property, including the permanent closure of a portion of road to accommodate the new infrastructure on adjacent LADWP property. As discussed in Section 3.16, Aesthetics and Visual Quality, permanent visual impacts could occur as a result of installation of new transmission towers or other features added to the existing visual setting to update electrical infrastructure in the project section. Underground utilities that conflict with the project section right-of-way would be relocated or reinforced underneath the right-of-way inside a casing pipe strong enough to carry the HSR system facilities and allow for utility maintenance access.

The Authority would assist utility providers in complying with CPUC General Order 131-E, including the need for prefiling consultation, preparation of draft CEQA documents, follow-on design, and environmental review for transmission line upgrades or construction as part of the CPUC permit application prior to construction. As a result, existing infrastructure and power supplies would not be affected over the long term.

Shared Passenger Track Alternative B

Impacts for Shared Passenger Track Alternative B would be the same as those of Shared Passenger Track Alternative A in terms of short-term temporary construction impacts from transmission line upgrades or construction of new or upgraded electrical distribution infrastructure. The LMF location does not affect electrical infrastructure required for HSR trains.

High-Speed Rail Station Options

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

With inclusion of the Norwalk/Santa Fe Springs HSR Station Option, impacts would be the same as those of the Shared Passenger Track Alternatives within the station area. Construction of the HSR platform, facilities, and parking would not require different upgrades or construction of power lines.

High-Speed Rail Station Option: Fullerton

With inclusion of the Fullerton HSR Station Option, impacts would be the same as those of the Shared Passenger Track Alternatives within the station area. Construction of the HSR platform, facilities, and parking would not require different upgrades or construction of power lines.

CEQA Conclusion

The impact under CEQA from the upgrade to utility infrastructure or construction of new power lines for the project would be less than significant because the necessary electrical interconnections and network upgrades would be implemented pursuant to CPUC General Order 131-E, which includes prefiling consultation, preparation of draft CEQA documents, follow-up

design, and environmental review for transmission line upgrades or construction. CEQA does not require mitigation.

Operational Impacts

Impact PU&E-10: Reduced Access to Existing Utilities in the High-Speed Rail Right-of-Way During Operation

Shared Passenger Track Alternative A

The project section right-of-way would be fenced and secured after construction and would involve permanent reduced access to utility infrastructure. Underground utilities that conflict with the project section right-of-way would be relocated or reinforced underneath the right-of-way inside a casing pipe strong enough to carry the HSR system facilities and allow for utility maintenance access from outside the project section right-of-way. Underground wet utilities, such as water, sewer, storm drains, gas, and petroleum pipelines, would be conveyed inside a pipeline material with a service life typically of 50 years or more. Dry utilities such as electrical, fiber-optic, and telephone lines would be encased in a durable pipeline (e.g., a pipeline made of steel would protect the dry utilities from deterioration and would have a service life of 50 years or more). If the utility conveyance pipeline were in need of repair or replacement, the casing pipe would stay in place so that project operations could continue. It is common practice that utility districts coordinate and schedule in advance field visits to their facilities with the owner of the property within which their facilities lie.

Shared Passenger Track Alternative B

Impacts for Shared Passenger Track Alternative B would be the same as those of Shared Passenger Track Alternative A in terms of permanent changes to existing utility access. The project right-of-way would be fenced and secured after construction. Any permanent changes to utility access at the LMF at 15th Street would follow common practice of utility districts to coordinate and schedule field visits to their facilities, which would provide sufficient access and avoid problematic limits or restrictions on access to existing facilities. If there are any utility conflicts caused by project construction, the project would relocate or reinforce the utilities where they are still accessible.

High-Speed Rail Station Options

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

With inclusion of the Norwalk/Santa Fe Springs HSR Station Option, impacts would be the same as those of the Shared Passenger Track Alternatives within the station area. During operation, the HSR right-of-way would be fenced and secured. The project would follow common practice of utility districts to coordinate and schedule field visits to their facilities, which would provide sufficient access and avoid problematic limits or restrictions on access to existing facilities.

High-Speed Rail Station Option: Fullerton

With inclusion of the Fullerton HSR Station Option, impacts would be the same as those of the Shared Passenger Track Alternatives within the station area. During operation, the HSR right-of-way would be fenced and secured. The project would follow common practice of utility districts to coordinate and schedule field visits to their facilities, which would provide sufficient access and avoid problematic limits or restrictions on access to existing facilities.

CEQA Conclusion

The impact on access for existing utilities under CEQA would be less than significant because standard engineering and utility access practices would be implemented, in addition to casing utilities and providing maintenance access to utilities underneath the project section right-of-way. Underground utilities that conflict with the project section right-of-way would be relocated or reinforced underneath the right-of-way inside a casing pipe strong enough to carry the HSR system facilities and allow for utility maintenance access. Underground wet utilities would be conveyed inside pipelines. Dry utilities would be encased in a durable pipeline. If the utility

conveyance pipeline were in need of repair or replacement, the casing pipe would stay in place so that project operations could continue. Therefore, CEQA does not require any mitigation.

Impact PU&E-11: Operational Water Supply Demand

Shared Passenger Track Alternative A

Estimated operational water use, based on changes in land use and anticipated project water demand, is presented in Table 3.6-19 for ARTIC and the 26th Street LMF, the two project facilities associated with Shared Passenger Track Alternative A that would generate water demand over the long term.

The project section would be partially within an existing BNSF right-of-way and an area where land uses are heavily industrial and transportation or utility related. Existing water usage at the proposed facility sites is limited because of the existing transportation and industrial land uses at the sites, where water demand is less than residential, commercial, or agricultural land uses (City of Los Angeles 2020). However, given that the urban water management plans for the cities in the RSA do not contain land use–based water usage factors and that the station sites have a climate similar to that of Palmdale, water usage factors from the Palmdale *Urban Water Management Plan* were applied for the analysis to estimate existing water usage for the project (Palmdale Water District 2016). For further explanation, refer to Appendix 3.6-A.

Table 3.6-19 identifies the anticipated operational water demand for Shared Passenger Track Alternative A.

Table 3.6-19 Estimated Existing Water Use and Anticipated Project Water Demand at the Proposed Light Maintenance Facility and ARTIC for Shared Passenger Track Alternative A in 2040

Facility	Existing Water Use (AFY)[1]	Operational Water Demand (AFY)	Percent of Planned Water Capacity[2]
26th Street LMF	29.3	144.2	0.02
ARTIC	10.3	99.3[3]	0.01

Sources: STV 2025a, 2025b; *Orange County Sanitation District 2023; County of Los Angeles 2023*
[1] Existing water use for station areas was calculated by applying a water use factor for each existing land use type within the footprint of the proposed station or facility.
[2] Based on a planned water capacity of 709,500 AFY by 2040 for both Anaheim and Los Angeles.
[3] Calculated from anticipated high-speed rail passengers; refer to Appendix 3.6-A, Table 3.6-A-4.
AFY = acre-feet per year; ARTIC = Anaheim Regional Transportation Intermodal Center; LMF = light maintenance facility

The Authority would seek to connect the operational facilities to the existing water supply system as part of the project. Existing and planned water supplies for the city of Los Angeles are anticipated to be adequate with respect to meeting operational project demand through 2045, according to the District 40 Los Angeles Urban Water Management Plan (LACWD 2021). As in many communities throughout California, increased conservation measures are encouraged by local agencies and service providers in the RSA to reduce water demand, particularly during multiple drought years. In addition, local water-use efficiency goals mandated statewide under SB X7-7, the Water Conservation Act of 2009, are incorporated into the Los Angeles Urban Water Management Plan and would partially offset the additional water demand expected from HSR station and LMF operations.

Overall, as presented in Table 3.6-A-5 of Appendix 3.6-A, project operations would ultimately result in a net decrease of water usage (about 316 AFY less) relative to the estimated existing water usage for the project footprint (including the rail right-of-way, the LMF at 26th Street, ARTIC, and the two Metrolink stations). This is because compared to existing water-intensive uses (e.g., industrial, commercial) in the project footprint, project operations would be less water intensive (utility and railway easements). However, as indicated in Table 3.6-19, the proposed 26th Street LMF and ARTIC station would demand more water than what is currently used by

existing land uses within their respective footprints, resulting in an additional 114.9 AFY for the 26th Street LMF and 89 AFY for ARTIC.

The existing land use categories at the 26th Street LMF location include commercial, unknown, and vacant. Collectively, these are estimated to use 29.3 AFY of water (refer to Appendix 3.6-A, Table 3.6-A-1). These uses would be replaced with the LMF and operational activities, which would include train washing, maintenance, and other activities by freight or passenger rail operators. Daily general water use is estimated at 128,730 gallons per day, or 144.2 AFY, and would amount to 0.02 percent of LADWP's total water supply by 2040. Wash water is assumed to be reused at a rate of approximately 50 percent with implementation of an on-site recycling system.

The existing land uses where the HSR station elements would be located at ARTIC primarily include commercial land as well as surface parking, which is estimated to use 10.3 AFY of water. These uses would be replaced by the HSR station elements, which include surface parking, a parking structure, an HSR station platform, and HSR station facilities. The majority of the HSR station elements would be built on land that currently serves as surface parking or is vacant. The commercial land uses would be replaced with a parking structure, which would generate minimal water demand. Operational water use was calculated based on passengers, rather than land use. HSR passengers using the ARTIC facilities would have a water demand of 99.3 AFY. Therefore, the HSR station at ARTIC would result in an increase of 89 AFY compared to existing conditions. ARTIC is within the study area of the *Urban Water Management Plan for the City of Anaheim,* which projects that total water supply for the city of Anaheim from all sources would be 58,878 AFY by 2025 and 66,337 AFY by 2045 (City of Anaheim 2021). The increased water demand from HSR passengers at ARTIC would amount to 0.01 percent of Anaheim's total water supply by 2045. As described in further detail in Appendix 3.6-A, this value was calculated using gallons of water per passenger per day, because the conversion of existing land uses to HSR station elements is not anticipated to contribute to the water demand.

Although the specific facility-related increases in water demand of approximately 114.9 AFY and 89 AFY at the 26th Street LMF and ARTIC, respectively, would be a small fraction of total supply for LADWP and Anaheim, these increases could potentially result in impacts on existing local service commitments. The Authority would implement **PUE-MM#1** for operational water usage and regional water supply at ARTIC and the 26th Street LMF if it is selected for operation. This will help to manage and prepare for continued operations in normal, dry, and multiple dry years.

Shared Passenger Track Alternative B

Impacts for Shared Passenger Track Alternative B would be similar to those of Shared Passenger Track Alternative A, with slightly higher estimated project water demand at the 15th Street LMF location.

Overall, as presented in Table 3.6-A-5 of Appendix 3.6-A, project operations for Shared Passenger Track Alternative B would similarly result in a net decrease of water usage (about 368 AFY less) relative to existing land uses for the project footprint (including the rail right-of-way, the LMF at 15th Street, ARTIC, and the two Metrolink stations).

However, as indicated in Table 3.6-20, the proposed LMF at 15th Street and ARTIC station would demand more water than is currently used by existing land uses within their respective footprints, resulting in an additional 92.1 AFY for the 26th Street LMF and 89 AFY for ARTIC.

The operational water demand for Shared Passenger Track Alternative B would similarly consist of a small fraction of the total supply for LADWP and Anaheim, but this increase could potentially result in impacts on existing local service commitments.

The Authority would implement **PUE-MM#1** for operational water usage and regional water supply at ARTIC and the 15th Street LMF if it is selected for operation. This will help to manage and prepare for continued operations in normal, dry, and multiple dry years.

Table 3.6-20 Estimated Existing Water Use and Anticipated Project Water Demand at the Proposed Light Maintenance Facility and ARTIC for Shared Passenger Track Alternative B

Facility	Existing Water Use (AFY)[1]	Operational Water Demand (AFY)	Percent of Planned Water Capacity[2]
15th Street LMF	57.8	149.9	0.02
ARTIC	10.3	99.3[3]	0.01

Sources: STV 2024c; County of Los Angeles 2023; Orange County Sanitation District 2023
[1] Existing water use for station areas was calculated by applying a water use factor for each existing land use type within the footprint of the proposed station or facility.
[2] Based on a planned water capacity of 709,500 AFY by 2040.
[3] Calculated from anticipated high-speed rail passengers; refer to Appendix 3.6-A, Table 3.6-A-4.
AFY = acre-feet per year; ARTIC = Anaheim Regional Transportation Intermodal Center; LMF = light maintenance facility

High-Speed Rail Station Options

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

With inclusion of the Norwalk/Santa Fe Springs HSR Station Option, impacts would be similar to those of the Shared Passenger Track Alternatives within the station area. During operation, 42 AFY would be needed at the Norwalk/Santa Fe Springs HSR Station Option, based on anticipated project water demand from HSR passengers, which is presented in Table 3.6-21. The project would connect to the existing water supply in the project area.

Table 3.6-21 Estimated Existing Water Use and Anticipated Project Water Demand at Norwalk/Santa Fe Springs High-Speed Rail Station Option

Proposed Station	Existing Water Use (AFY)[1]	Operational Water Demand (AFY)	Percent of Planned Water Capacity[2]
Norwalk/Santa Fe Springs HSR Station Option	28.6	42.0[3]	0.07

Sources: STV 2024c; City of Norwalk 2021
[1] Existing water use for station areas was calculated by applying a water use factor for each existing land use type within the footprint of the proposed station or facility.
[2] Based on a planned local water capacity of 3,694 AFY by 2030 for the Norwalk/Santa Fe Springs HSR Station Option.
[3] Calculated from anticipated HSR passengers; refer to Appendix 3.6-A, Table 3.6-A-4.
AFY = acre-feet per year; HSR = high-speed rail

The Norwalk/Santa Fe Springs location is served by the Golden State Water Company and is within the study area of the *Urban Water Management Plan for the City of Norwalk*. This plan projects that total water supply for the cities of Norwalk and Santa Fe Springs from all sources would be 3,694 AFY by 2025 and 3,694 AFY by 2045 (City of Norwalk 2021).

The existing land uses where the HSR station elements would be located at Norwalk/Santa Fe Springs Metrolink Station include commercial and industrial, which are estimated to use 28.6 AFY of water. These uses would be replaced by the HSR station elements, which include surface parking, an HSR substation, and a station facility for both HSR and Metrolink passengers. The majority of the HSR station elements would be built on land that currently serves as surface parking or parking for freight containers. The commercial/industrial land uses would be replaced with additional surface parking, which would generate minimal water demand. Operational water use was calculated based on passengers, rather than land use. HSR passengers using the station facilities at the Norwalk/Santa Fe Springs Metrolink Station would have a water demand of 42 AFY. Therefore, the HSR station option would result in an increase of 13.4 AFY compared to estimates of existing uses. According to the *Urban Water Management Plan for the City of Norwalk*, the Golden State Water Company would have sufficient supply to adequately serve its existing service area during normal, dry, and multiple dry years (City of Norwalk 2021). Although the project-related increase in water demand at the Norwalk/Santa Fe Springs HSR Station Option would be approximately 13.4 AFY compared to existing uses and would be a small

fraction of the total supply for the Golden State Water Company according to current capacity and projections, this increase could potentially result in impacts on the cities' existing service commitments.

If chosen for development, the Authority would implement **PUE-MM#1**, which requires the Authority to prepare an updated water supply analysis for the Norwalk/Santa Fe Springs HSR Station Option to identify the detailed water supply needs for operation of this HSR station. This will help to manage and prepare for continued, successful operation of the station in normal, dry, and multiple dry years. The water supply analysis would describe in detail the minimum adequate water supply for the RSA and, specifically, the Norwalk/Santa Fe Springs HSR Station Option during normal, dry, and multiple dry years based on a more detailed project design and determine if the small fraction of water required to serve the Norwalk/Santa Fe Springs HSR Station Option can be provided by the Golden State Water Company's existing supplies.

High-Speed Rail Station Option: Fullerton

With inclusion of the Fullerton HSR Station Option, impacts would be similar to those of the Shared Passenger Track Alternatives within the station area. During operation, 41.7 AFY would be needed at the Fullerton HSR Station Option, based on changes in land use and anticipated project water demand, which are presented in Table 3.6-22.

Table 3.6-22 Estimated Existing Water Use and Anticipated Project Water Demand at Fullerton High-Speed Rail Station Option

Proposed Station	Existing Water Use (AFY)[1]	Operational Water Demand (AFY)	Percent of Planned Water Capacity[2]
Fullerton HSR Station Option	9.1	41.7[3]	0.01

Sources: STV 2024c; City of Fullerton 2021
[1] Existing water use for station areas was calculated by applying a water use factor for each existing land use type within the footprint of the proposed station or facility.
[2] Based on a planned local water capacity of 27,444 AFY by 2030 for the Fullerton HSR Station Option.
[3] Calculated from anticipated HSR passengers; refer to Appendix 3.6-A, Table 3.6-A-4.
AFY = acre-feet per year; HSR = high-speed rail

The Fullerton HSR Station Option location is served by the City of Fullerton and is within the study area of the *Urban Water Management Plan for the City of Fullerton*. This plan projects that total water supply for Fullerton from all sources would be 25,655 AFY by 2025 and 27,850 AFY by 2045 (City of Fullerton 2021).

The existing land uses where the HSR station elements would be located include commercial and industrial, which are estimated to use 9.1 AFY of water. These uses would be replaced by HSR station elements, which include surface parking, an HSR substation, and a station facility for both HSR and Metrolink passengers. Operational water use was calculated based on passengers, rather than land use. HSR passengers using the HSR station facilities would have a water demand of 41.7 AFY. Therefore, the HSR station option would result in an increase of 32.6 AFY compared to estimates of existing uses. According to the Urban Water Management Plan, Fullerton would have sufficient supply to adequately serve its existing service area during normal, dry, and multiple dry years. Although the project-related increase in water demand at the Fullerton HSR Station Option would be approximately 32.6 AFY and would be a small fraction of the total supply for Fullerton according to current capacity and projections, this increase could potentially result in impacts on the city's existing service commitments.

If selected for development, the Authority would implement **PUE-MM#1**, which requires the Authority to prepare updated water supply analyses for the Fullerton HSR Station Option that identifies the detailed water supply needs for operation of this HSR station option. The water supply analyses would describe in detail the minimum adequate water supply for the RSA and, specifically, the Fullerton HSR Station Option during normal, dry, and multiple dry years based on

a more detailed project design and determine if the small fraction of water required to serve the Fullerton HSR Station Option can be provided by Fullerton's existing supplies.

CEQA Conclusion

The impact from operational water demand is considered potentially significant under CEQA. Although existing projections anticipate that there is sufficient water supply to provide for operation of the project, including stations and facilities, the ongoing uncertainty of water supply in Southern California creates the necessity for additional and regular planning to ensure that water supplies for the project can be secured throughout the operational life of the project.

The project's operational water needs would represent a small fraction of the total supply for the districts serving the project, according to current analyses. As presented in Appendix 3.6-A, Table 3.6-A-5, total operational demand of either Shared Passenger Track Alternative, even with inclusion of one of the HSR station options, would result in an overall reduction in water usage compared to estimations of existing uses.

However, the increases in operational water usage as stated above (refer to Table 3.6-19 through Table 3.6-22) could potentially result in impacts on local water suppliers' existing service commitments because of increases at the LMF and station locations. In the absence of the verification of future supply by each supplier for the entire project life, the sufficiency of water supply to serve the project is reliant on implementation of **PUE-MM#1** at regular intervals throughout the operation of the project.

The Authority would implement **PUE-MM#1**, which requires the preparation and completion of an initial water supply analysis prior to the anticipated start of operations, and subsequent updated water supply analyses for the project every 5 years following the start of operations that identify the detailed water supply needs for operation of the LMF and stations. The water supply analyses will describe in detail the minimum adequate water supply for the RSA during normal, dry, and multiple dry years based on a more detailed project design and determine if the small fraction of water required to serve the project can be provided by existing water supplies. Although implementation of **PUE-MM#1** would identify the detailed water supply needed for project operation in advance, it is possible that project operation could require new or expanded entitlements, or have to deal with shortages caused by local, rapidly changing conditions such as wildfires and drought. Section 3.6.7 describes **PUE-MM#1** in more detail.

The Authority will, to the maximum extent feasible, have regular coordination with the water agencies to verify the sufficiency of water supplies and fund the expansion of water supplies and infrastructure necessary to reduce impacts related to operational water use at the LMF and stations. Although the amount of water required for project operation at the LMFs, HSR platforms, and station facilities is a small fraction of the water agencies existing supply, the increased water demand in the face of local uncertainty would only be reduced to a less-than-significant impact with implementation of **PUE-MM#1** throughout the project's operational life. Therefore, this impact would be less than significant after mitigation under CEQA.

Impact PU&E-12: Operational Wastewater Service Demand

Shared Passenger Track Alternative A

Estimates for wastewater generated at the 26th Street LMF and ARTIC, presented in Table 3.6-23, are based on a percentage of the projected water consumption at the facilities (i.e., from a mix of concourse, office, parking structure, outdoor car park, and platform uses). Total estimated wastewater generation for the 26th Street LMF and ARTIC is assumed to be 50 percent of the total water demand generated from uses at these facilities. As presented in Table 3.6-5, wastewater treatment facilities for the 26th Street LMF and ARTIC are in Carson and Huntington Beach. It is anticipated that wastewater generated at the 26th Street LMF and ARTIC would be treated at a facility in Carson and Huntington Beach, respectively. Existing and estimated wastewater capacity for these treatment facilities is included in Table 3.6-23.

In accordance with the SWPPP and applicable permit requirements, temporary stormwater management structures would be built as needed so the capacity of existing stormwater

management systems would not be exceeded. 26th Street LMF and ARTIC wastewater generation, in addition to existing treatment commitments, would not exceed wastewater treatment requirements of the Los Angeles RWQCB and Santa Ana RWQCB.

Table 3.6-23 Estimated Project Wastewater Generated for the 26th Street Light Maintenance Facility and ARTIC

Station	Estimated Wastewater Generation (gallons per day) [1]	Existing Capacity (million gallons per day)	Excess Capacity (million gallons per day)	Percent of Excess Capacity Used by HSR Project
26th Street LMF	64,359.9	312 (AKWWRF)	185 (AKWWRF)	0.03%
ARTIC	44,290	312 (OCSDTP)	185 (OCSDTP)	0.02%

Sources: STV 2024c; Authority and FRA 2014; City of Los Angeles 2020; LACSD 2023; Orange County Sanitation District 2023
[1] LMF Wastewater demand estimated at 29.55 gallons per day per 1,000 square feet. Refer to Appendix 3.6-A, Table 3.6-A-3.
AKWWRF = A.K. Warren Water Resource Facility; ARTIC = Anaheim Regional Transportation Intermodal Center; LMF = light maintenance facility; OCSDTP = Orange County Sanitation District Treatment Plant No. 2

Shared Passenger Track Alternative B

Impacts for Shared Passenger Track Alternative B would be similar to those described for Shared Passenger Track Alternative A, with the 15th Street LMF generating slightly more wastewater. Estimates for wastewater generated at the 15th Street LMF and ARTIC, presented in Table 3.6-24, are based on a percentage of the projected water consumption at the facilities. Total estimated wastewater generation for the 15th Street LMF and ARTIC is assumed to be 50 percent of the total water demand generated from uses at these facilities. As presented in Table 3.6-5, there are two wastewater treatment facilities that could serve the 15th Street LMF. It is anticipated that wastewater from the 15th Street LMF would be treated at Hyperion Water Reclamation Plant, because it has a much higher capacity than the Los Angeles/Glendale Water Reclamation Plant. As discussed in Section 3.8, wastewater generation at the 15th Street LMF would not exceed wastewater treatment requirements of the Los Angeles RWQCB. Existing wastewater capacity at these treatment facilities is included in Table 3.6-5.

Table 3.6-24 Estimated Project Wastewater Generated for the 15th Street Light Maintenance Facility and ARTIC

Station	Estimated Wastewater Generation (gallons per day) [1]	Existing Capacity (million gallons per day)	Excess Capacity (million gallons per day)	Percent of Excess Capacity Used by HSR Project
15th Street LMF	66,930.8	450 (HWRP)	175 (HWRP)	0.04%
ARTIC	44,290	312 (OCSDTP)	185 (OCSDTP)	0.02%

Sources: Authority and FRA 2014; City of Los Angeles 2023; LACSD 2023; Orange County Sanitation District 2023
[1] LMF Wastewater demand estimated at 29.55 gallons per day per 1,000 square feet. Refer to Appendix 3.6-A, Table 3.6-A-3.
[2] Percentage of excess capacity of water used by the LMF would be negligible.
ARTIC = Anaheim Regional Transportation Intermodal Center; HSR = high-speed rail; HWRP = Hyperion Water Reclamation Plant; LMF = light maintenance facility; OCSDTP = Orange County Sanitation District Treatment Plant No. 2

High-Speed Rail Station Options

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

With inclusion of the Norwalk/Santa Fe Springs HSR Station Option, impacts would be similar to those of the Shared Passenger Track Alternatives within the station area. During operation, additional wastewater would be generated at the Norwalk/Santa Fe Springs HSR Station Option, which would be treated at a facility in the city of Los Angeles. As discussed in Section 3.8, wastewater generation at the Norwalk/Santa Fe Springs HSR Station Option would not exceed

wastewater treatment requirements of the Los Angeles RWQCB. Existing and estimated wastewater capacity with the Norwalk/Santa Fe Springs HSR Station Option at this treatment facility is included in Table 3.6-25.

Table 3.6-25 Estimated Project Wastewater Generated for Norwalk/Santa Fe Springs High-Speed Rail Station Option

Station	Estimated Wastewater Generation (gallons per day)	Existing Capacity (million gallons per day)	Excess Capacity (million gallons per day)	Percent of Excess Capacity Used by HSR Project
Norwalk/Santa Fe Springs HSR Station Option	18,727.5	400 (AKWWRF)	168 (AKWWRF)	0.01%

Source: City of Norwalk 2021
AKWWRF= A.K. Warren Water Resource Facility; HSR = high-speed rail

Although the HSR station option would generate slightly more wastewater, it would be a small increase and would not exceed the available treatment capacity of the plant that would serve the project.

High-Speed Rail Station Option: Fullerton

With inclusion of the Fullerton HSR Station Option, impacts would be similar to those of the Shared Passenger Track Alternatives within the station area. During operation, additional wastewater would be generated at the Fullerton HSR Station Option, which would be treated at a facility in Huntington Beach. As discussed in Section 3.8, wastewater generation at the Fullerton HSR Station Option would not exceed wastewater treatment requirements of the Santa Ana RWQCB. Existing and estimated wastewater capacity with the Fullerton HSR Station Option at this treatment facility is included in Table 3.6-26.

Table 3.6-26 Estimated Project Wastewater Generated for Fullerton High-Speed Rail Station Option

Station	Estimated Wastewater Generation (gallons per day)	Existing Capacity (million gallons per day)	Excess Capacity (million gallons per day)	Percent of Excess Capacity Used by HSR Project
Fullerton HSR Station Option	18,582.5	312 (OCSDTP)	185 (OCSDTP)	0.01%

Source: City of Fullerton 2020
OCSDTP = Orange County Sanitation District Treatment Plant No. 2; HSR = high-speed rail

Although the HSR station option would generate slightly more wastewater, it would be a small increase, and would not exceed the available treatment capacity of the plant that would serve the project.

CEQA Conclusion

The impact under CEQA from wastewater generated by operations of the project would be less than significant because wastewater generated during operation would not exceed the available treatment capacity of the plants that would serve the project. Therefore, wastewater generated by operations of the project would be less than significant, and CEQA does not require mitigation.

Impact PU&E-13: Effects on Storm Drain Facilities During Operation

Shared Passenger Track Alternative A

Implementation of Shared Passenger Track Alternative A would cause temporary and permanent changes in drainage patterns related to excavation and placement of fill, placement of new

embankments, new bridge and overcrossing structures, bridge abutments, support piles, and new impervious surfaces. These changes would affect stormwater runoff during rain events, including changes in runoff volumes or rates and increased pollutant loading, compared to existing conditions. The design of the project will include the detainment of on-site stormwater runoff, improvement of infiltration rates, and minimization of disruptions to the movement of water (**HYD-IAMF#1**). Refer to Section 3.8 for further description of the stormwater IAMFs identified in this analysis. The on-site stormwater drainage system would consist of open ditches or underdrains at the outer sides of the railbed.

An open ditch is a natural or built structure that conveys water, with the top surface in contact with the atmosphere (i.e., not enclosed in a pipe). Subsurface drainage would be accomplished via underdrains at the outer sides of the railbed. These systems are necessary to rapidly remove and prevent water from interfering with track stability, roadbeds, and side slopes. They are also needed where the right-of-way design constrains the use of open ditches. The runoff generated on site would flow into the drainage system of the adjacent at-grade trackway. Water from the open ditches and underdrains would enter the local stormwater system.

Elevated sections of track will be designed to prevent saturation, improve infiltration rate, and stabilize soils where streamflow velocities are increased because of added runoff to minimize impacts related to erosion and surface water hydrology (**HYD-IAMF#2**). Stormwater management practices and measures, including permeable surfaces to retain or detain and treat stormwater on site, will also be incorporated into project design (**HYD-IAMF#3**). In addition, stormwater runoff will be effectively managed and treated through the installation of infiltration or detention facilities and incorporation of permeable vegetated surfaces to accommodate increased rates and amounts of runoff and increase infiltration and groundwater recharge (**HYD-IAMF#4**). The Authority would also implement additional flow-control measures where local regulations or drainage requirements dictate. Section 3.8 provides further detailed analysis regarding impacts on drainage and stormwater runoff.

Shared Passenger Track Alternative A would not require or result in the construction of new stormwater drainage facilities or expansion of existing facilities outside the limits of the project. The IAMFs include stormwater management practices and measures, such as effective flow-control measures, to accommodate increased rates and amounts of runoff.

Shared Passenger Track Alternative B

Impacts for Shared Passenger Track Alternative B would be the same as those described for Shared Passenger Track Alternative A in terms of temporary and permanent changes in drainage patterns. Construction of the LMF at 15th Street could similarly cause temporary and permanent changes in drainage patterns. **HYD-IAMF#1**, **HYD-IAMF#2**, **HYD-IAMF#3**, and **HYD-IAMF#4** will effectively reduce or avoid impacts from stormwater through effective stormwater management practices and measures to manage and treat stormwater, accommodate increased rates of runoff, and improve infiltration and groundwater recharge.

High-Speed Rail Station Options

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

With inclusion of the Norwalk/Santa Fe Springs HSR Station Option, impacts would be the same as those of the Shared Passenger Track Alternatives within the station area. Although the HSR station option would include permanent elements on an area larger than what would be modified under the Shared Passenger Track Alternatives, **HYD-IAMF#1**, **HYD-IAMF#2**, **HYD-IAMF#3**, and **HYD-IAMF#4** are included as part of the project and will effectively reduce or avoid impacts from stormwater through effective stormwater management practices and measures to manage and treat stormwater, accommodate increased rates of runoff, and improve infiltration and groundwater recharge.

High-Speed Rail Station Option: Fullerton

With inclusion of the Fullerton HSR Station Option, impacts would be the same as those of the Shared Passenger Track Alternatives within the station area. Although the HSR station option

would include permanent elements on an area larger than what would be modified under the Shared Passenger Track Alternatives, **HYD-IAMF#1**, **HYD-IAMF#2**, **HYD-IAMF#3**, and **HYD-IAMF#4** are included as part of the project and will effectively reduce or avoid impacts from stormwater through effective stormwater management practices and measures to manage and treat stormwater, accommodate increased rates of runoff, and improve infiltration and groundwater recharge.

CEQA Conclusion

The impact under CEQA on stormwater drainage facilities during operations of the project would be less than significant because the project would not require or result in the relocation or construction of new or expanded stormwater drainage facilities that could result in significant environmental impacts. **HYD-IAMF#1**, **HYD-IAMF#2**, **HYD-IAMF#3**, and **HYD-IAMF#4** will effectively reduce or avoid impacts from stormwater through effective stormwater management practices and measures to manage and treat stormwater, accommodate increased rates of runoff, and improve infiltration and groundwater recharge. Therefore, impacts on stormwater from operation of the project would be less than significant, and CEQA does not require mitigation.

Impact PU&E-14: Effects on Solid Waste During Operation

Shared Passenger Track Alternative A

Project operations that would generate solid waste include passenger refuse disposal (at stations), as well as materials used for HSR train and station maintenance. Shared Passenger Track Alternative A would not physically conflict with existing solid waste disposal facilities. No existing or proposed expansion areas for solid waste disposal would be affected by operation of the project.

As indicated in Table 3.6-13, of the eight landfills that serve the RSA, all have sufficient capacity to accommodate operational waste disposal. Under the California Integrated Waste Management Act of 1989 and AB 939, local jurisdictions are required to prepare annual plans for new or expanded solid waste disposal services before the estimated closure dates of the existing facilities. However, the need for new or expanded landfill capacity beyond currently projected closure dates would not occur solely as a result of operation of the project.

Total estimates for the 26th Street LMF and ARTIC represent a limited percentage (less than 1.0 percent) of the estimated permitted daily disposal capacity provided in Table 3.6-13 for each of the landfills in the area.

Activities at the LMF, including administrative (office) work, material packaging, and maintenance of the HSR, as well as incidental waste from maintenance facility employees, would generate solid waste such as paper, cardboard, plastics, and materials similar to household waste. Estimates indicate that the LMF would generate approximately 538 tons of waste annually, representing a negligible percentage (0.0004 percent) of estimated total permitted daily disposal for landfills in Los Angeles and Orange Counties (refer to Table 3.6-13). Existing landfill capacity would be adequate during the life of the project.

Shared Passenger Track Alternative B

Impacts for Shared Passenger Track Alternative B would be the same as those of Shared Passenger Track Alternative A. Estimates indicate that the 15th Street LMF would generate approximately 538 tons of waste annually, representing a negligible percentage (0.001 percent) of estimated total permitted disposal capacity for landfills in Los Angeles. Existing landfill capacity would be adequate during the life of the project.

High-Speed Rail Station Options

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

With inclusion of the Norwalk/Santa Fe Springs HSR Station Option, impacts would be similar to those of the Shared Passenger Track Alternatives within the station area. Project operations would generate solid waste include passenger refuse disposal (at stations), as well as materials used for HSR train and station maintenance. The Savage County Landfill serves Santa Fe

Springs and would serve the project site (City of Santa Fe Springs 2021). Estimates indicate that the station, with up to 25 employees and a generation rate of 8.93 pounds per employee per day (CalRecycle 2006), would generate approximately 204 tons of waste annually, representing a negligible percentage (0.002 percent) of estimated total permitted disposal capacity for Savage County Landfill. Although operation at the HSR station option would result in an increase in solid waste generation, existing landfill capacity would be adequate during the life of the project.

High-Speed Rail Station Option: Fullerton

With inclusion of the Fullerton HSR Station Option, impacts would be similar to those of the Shared Passenger Track Alternatives within the station area. Project operations would generate solid waste include passenger refuse disposal (at stations), as well as materials used for HSR train and station maintenance. The Olinda Alpha Landfill serves Fullerton Station and would serve the project site (City of Fullerton 2020). Estimates indicate that the station, with up to 25 employees and a generation rate of 8.93 pounds per employee per day (CalRecycle 2006), would generate approximately 204 tons of waste annually, representing a negligible percentage (0.001 percent) of estimated total permitted disposal capacity for Olinda Alpha Landfill. Although operation at the HSR station option would result in an increase in solid waste generation, existing landfill capacity would be adequate during the life of the project.

CEQA Conclusion

The impact under CEQA from generation of solid waste during operation of the project would be less than significant because the existing landfill capacity would be adequate for the project; therefore, the project would not trigger the need for new or expanded facilities. Additionally, with implementation of regulatory requirements during operations, the project would not exceed state or local standards and would not impair the attainment of solid waste reduction goals. Therefore, CEQA does not require mitigation.

Impact PU&E-15: Effects from Hazardous Waste Generation

Shared Passenger Track Alternative A

As discussed in Section 3.10, routine maintenance of Shared Passenger Track Alternative A would involve the use of small amounts of hazardous materials and wastes for operation and maintenance of the LMFs, stations, tracks, and railroad right-of-way as well as other systems required for HSR operations such as power systems, train control, signalizing, and communications. Operation of the LMF would involve the use, storage, and disposal of hazardous materials and petroleum products associated with maintenance of HSR equipment. Hazardous waste may consist of welding materials, fuel and lubricant containers, batteries, and paint and solvent residues and containers.

Hazardous wastes would be handled, stored, and disposed of in accordance with applicable requirements, such as the Resource Conservation and Recovery Act (refer to Section 3.10). A certified hazardous waste collection company will deliver the waste to an authorized hazardous waste management facility for recycling or disposal (**HMW-IAMF#7**). Although no landfill accepts hazardous wastes within the public utilities RSA, there are two Class I landfills active in California: Clean Harbors (Buttonwillow) and Chem Waste Management (Kettleman Hills). Additionally, the use of hazardous materials and generation of hazardous waste would comply with applicable federal and state regulations as listed in Section 3.10.2, Laws, Regulations, and Orders. **HMW-IAMF#9** requires the Authority to prepare a hazardous materials management business plan, which provides emergency responders with emergency contact information, site-specific chemical inventories, and vicinity and facility maps. **HMW-IAMF#10** requires the Authority to prepare hazardous materials monitoring plans, including a spill prevention, control, and countermeasure plan.

No existing areas for hazardous waste disposal would be affected by the project.

Shared Passenger Track Alternative B

Impacts for Shared Passenger Track Alternative B would be the same as those of Shared Passenger Track Alternative A. The location of the LMF does not affect the types of operations

and maintenance that would be conducted, and Shared Passenger Track Alternative B would not generate additional or different types of hazardous waste. **HMW-IAMF#7**, **HMW-IAMF#9**, and **HMW-IAMF#10** will ensure that all hazardous wastes are handled, stored, and disposed of by a certified hazardous waste collection company in accordance with applicable regulatory requirements and be disposed of at permitted landfills with sufficient capacity.

High-Speed Rail Station Options

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

With inclusion of the Norwalk/Santa Fe Springs HSR Station Option, impacts would be the same as those of the Shared Passenger Track Alternatives within the station area. Operation and maintenance activities at the station would generate the same types of hazardous waste typical of operations and maintenance of tracks, stations, and railroad rights-of-way. However, **HMW-IAMF#7**, **HMW-IAMF#9**, and **HMW-IAMF#10** will ensure that all hazardous wastes are handled, stored, and disposed of by a certified hazardous waste collection company in accordance with applicable regulatory requirements and be disposed of at permitted landfills with sufficient capacity.

High-Speed Rail Station Option: Fullerton

With inclusion of the Fullerton HSR Station Option, impacts would be the same as those of the Shared Passenger Track Alternatives within the station area. Operation and maintenance activities at the station would generate the same types of hazardous waste typical of operations and maintenance of tracks, stations, and railroad rights-of-way. However, **HMW-IAMF#7**, **HMW-IAMF#9**, and **HMW-IAMF#10** will ensure that all hazardous wastes are handled, stored, and disposed of by a certified hazardous waste collection company in accordance with applicable regulatory requirements and be disposed of at permitted landfills with sufficient capacity.

CEQA Conclusion

The impact under CEQA from generation of hazardous waste during operation of the project would be less than significant for both Shared Passenger Track Alternatives and the optional HSR Station Option. **HMW-IAMF#7**, **HMW-IAMF#9**, and **HMW-IAMF#10** require that hazardous wastes will be handled, stored, and disposed of by a certified hazardous waste collection company in accordance with applicable regulatory requirements and be disposed of at permitted landfills with sufficient capacity. The waste generated by the project would not exceed the permitted capacity of hazardous waste landfills in California; therefore, no new hazardous waste disposal infrastructure would need to be built and permitted as result of the project, and solid waste generation from project operation would not impair the attainment of solid waste reduction goals. Therefore, the impact from generation of hazardous waste during operations would be less than significant and CEQA does not require mitigation.

Energy

Construction Impacts

Construction of the Shared Passenger Track Alternatives would result in energy consumption in the energy RSA during the construction period. The exact amount of energy consumed during construction depends on the characteristics of the Shared Passenger Track Alternatives.

Impact PU&E-9: Construction Energy Consumption

Shared Passenger Track Alternative A

During construction of Shared Passenger Track Alternative A, energy would be consumed to transport construction materials and support major staging areas, field offices, and security lighting. Operating and maintaining construction equipment during the construction process would also consume energy resources, such as fossil fuels.

The amount of energy consumed for construction of the project depends on the lengths of elevated, tunnel and trench, and at-grade guideway work. As indicated in Table 3.6-27, energy consumed for construction is estimated to be 961,480 million British thermal units (MMBtu) for

Shared Passenger Track Alternative A, including construction activities at ARTIC and the modifications required for the Metrolink stations in Norwalk/Santa Fe Springs and Fullerton. The energy used for construction of track work, guideways, support facilities, and other structures would be a one-time, nonrecoverable energy cost.

Table 3.6-27 Construction Energy Consumption and Payback for the Shared Passenger Track Alternatives and High-Speed Rail Station Options

Component/Station	Total[1] Construction Energy Consumption (MMBtu)	2040 Annual Energy Savings (MMBtu per year)	Payback Period (Years)
Shared Passenger Track Alternative A (Nonstop)[2]	961,480	(9,660,265)	0.10
With Norwalk/Santa Fe Springs HSR Station Option	982,715	(9,850,989)	0.10
With Fullerton HSR Station Option	980,607	(9,792,611)	0.10
Shared Passenger Track Alternative B (Nonstop)[2]	1,006,271	(9,660,265)	0.10
With Norwalk/Santa Fe Springs HSR Station Option	1,027,506	(9,850,989)	0.10
With Fullerton HSR Station Option	1,025,397	(9,792,611)	0.10

Source: Authority 2020b; STV 2024a; ERP/ICF 2025
[1] Construction impacts are estimated to occur for approximately 7 years for the total project. Individual stations are anticipated to take less time; Fullerton platform and station facilities would take 3.1 years, and Norwalk/Santa Fe Springs platform and station facilities would take 3.0 years.
[2] Totals for the Shared Passenger Track Alternatives for construction energy consumption and energy savings are inclusive of data associated with Anaheim Regional Transportation Intermodal Center. Refer to Appendix 3.6-A-1 for construction energy calculations and Appendix 1-A for estimated energy savings.
HSR = high-speed rail; MMBtu = million British thermal units

Construction would result in the direct use of fuels (primarily gasoline and diesel) for construction equipment and vehicles, as well as electricity for equipment used to support construction equipment. Construction would also result in indirect use of energy associated with the extraction, manufacturing, and transport of construction materials.

The design of the project will include the use of energy-saving measures during construction to minimize both electricity and fossil fuel consumption (**PUE-IAMF#1**). As stated in the *2023 Sustainability Report: Building California's Sustainable Future* (Authority 2023b), contractors would be required to use only zero-emission vehicles for on-road project fleets. Furthermore, energy efficiency is assumed for the off-site production of construction materials (Authority and FRA 2005), with this assumption based on the cost of nonrenewable resources and the economic incentives for efficiency.

Although measurable amounts of energy would be used for construction, the project would not require additional peak- or base-load capacity for electricity and other forms of energy during the construction period. Most of the construction equipment would use liquid fuel and would not require electricity from the electrical grid to operate. Although construction of the project would require energy, the continued operation of the HSR system would result in overall energy savings through the system's use of renewable energy supply during operations. As a result, energy expended on construction would be recovered in about 1 month based on anticipated 2040 ridership. Table 3.6-27 provides construction energy use assumptions and payback information for the project.

Moreover, HSR would be an energy-efficient mode of transportation and would provide a travel alternative that is less energy intensive than other modes of transportation currently used for travel within the state, such as personal vehicles and commercial air flights.

Although measurable, the energy used for construction would not require an increase in peak- or base-load capacity for electricity and other forms of energy. As described in Section 3.6.5.2,

Energy, California's total energy consumption for 2022 was 982 trillion British thermal units (287,827 million kilowatt-hours) (CEC 2023a). The increased energy use during construction would be temporary and would not require additional long-term capacity for either fossil fuel or electricity energy.

Shared Passenger Track Alternative B

Impacts for Shared Passenger Track Alternative B would be similar to those described for Shared Passenger Track Alternative A. As indicated in Table 3.6-27, energy consumed for construction is estimated to be 1,006,271 MMBtu, including construction at ARTIC. Although the project would temporarily increase the energy use during construction, the project would not substantially deplete the regional energy supply and operations because construction electricity use would constitute a minimal amount of grid-supplied electricity. Additionally, the project will incorporate **PUE-IAMF#1** to ensure that the project uses energy-saving features during construction. Furthermore, the energy used during construction would be offset by the energy saved during operation. Energy expended on construction would be recovered in about 1 month based on anticipated 2040 ridership.

High-Speed Rail Station Options

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

With inclusion of the Norwalk/Santa Fe Springs HSR Station Option, impacts would be similar to those of the Shared Passenger Track Alternatives. As indicated in Table 3.6-27, energy consumed for construction of the HSR station elements is estimated to be an additional 21,235 MMBtu for one-time construction energy usage. The project would not substantially deplete the regional energy supply and operations because construction electricity use would constitute a minimal amount of grid-supplied electricity. Additionally, the project will incorporate **PUE-IAMF#1** to ensure that the project uses energy-saving features during construction. Furthermore, the energy used during construction would be offset by the energy saved during operation. Energy expended on construction would be recovered in about 1 month based on anticipated 2040 ridership.

High-Speed Rail Station Option: Fullerton

With inclusion of the Fullerton HSR Station Option, impacts would be similar to those of the Shared Passenger Track Alternatives. As indicated in Table 3.6-27, energy consumed for construction of the HSR station elements is estimated to be an additional 19,127 MMBtu for one-time construction energy usage. Although the project would temporarily increase the energy use during construction, the project would not substantially deplete the regional energy supply and operations because construction electricity use would constitute a minimal amount of grid-supplied electricity. Additionally, **PUE-IAMF#1** will ensure that the project implements energy-saving features during construction. Furthermore, the energy used during construction would be offset by the energy saved during operation. Energy expended on construction would be recovered in about 1 month based on anticipated ridership in 2040.

CEQA Conclusion

The impact under CEQA on energy resources from energy consumption during construction of the project would be less than significant. Although energy use would increase temporarily during construction, **PUE-IAMF#1** will effectively minimize energy consumption during construction through implementation of the Authority's Sustainability Policy and specific sustainability requirements included by the Authority in the contract for design-build services. Furthermore, because of the minimal amount of grid-supplied electricity that would be needed, construction would not place a substantial demand on regional energy supply or require substantial additional regional energy capacity, or substantially increase peak- and base-period electricity demand. Construction of the project would not result in potentially significant environmental impacts because of wasteful, inefficient, or unnecessary consumption of energy resources or conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Therefore, CEQA does not require mitigation.

Operational Impacts

Operation of the project would include inspection and maintenance along the track and railroad right-of-way, as well as of the structures, fencing, power system, train control, electric interconnection facilities, and communications. Operations and maintenance are more fully described in Chapter 2, Alternatives. Early action projects (grade separations, Metrolink station relocations, and freight yard improvements) are also described in more detail in Chapter 2.

Impact PU&E-16: Operational Energy Demand

Shared Passenger Track Alternative A

Shared Passenger Track Alternative A will incorporate design elements that minimize electricity consumption (e.g., using regenerative braking, energy-saving equipment on HSR trains and at station and maintenance facilities, and automatic train operations to maximize energy efficiency during operations), such that operations will not overburden utility services (**PUE-IAMF#1**). The design elements would be included in the design-build contract. Additionally, the Authority has adopted a sustainability policy that establishes project design requirements that avoid and minimize energy consumption during operations.

Operation of Shared Passenger Track Alternative A would use an electrified line supporting electric vehicles with traction power connected to existing SCE substations. For determining HSR energy consumption, the Authority assumed use of a Siemens ICE-3 Velaro vehicle operating as two 8-car trainsets and traveling 43.1 million annual train miles by 2040. The HSR system would decrease automobile VMT and reduce energy consumption by automobiles, resulting in an overall reduction in energy use for intercity and commuter travel. Table 3.6-28 indicates that the estimated decrease in energy use of the project would be at least -9,660,265.26 MMBtu per year in 2040.

Table 3.6-28 2040 Estimated Change in Energy Consumption Caused by the Shared Passenger Track Alternatives

Projected Outcomes	Shared Passenger Track Alternatives A and B, Nonstop (MMBtu/year)	Shared Passenger Track Alternatives A and B, Norwalk/Santa Fe Springs HSR Station Option (MMBtu/year)	Shared Passenger Track Alternatives A and B, Fullerton HSR Station Option (MMBtu/year)
Reduced VMT	-9,871,962.57	-10,067,541.13	-10,008,270.62
Increased energy consumption[1]	211,697.31	216,551.79	215,659.36
Net change in energy demand	**-9,660,265.26**	**-9,850,989.34**	**-9,792,611.26**

Source: STV 2024c; ERP/ICF 2025

[1] The Los Angeles to Anaheim Project Section accounts for 5.6 percent of Phase 1 operations. Therefore, energy consumption for HSR was estimated by taking 5.6 percent of total energy consumption estimates for Phase 1 of HSR and adding energy consumption for light maintenance facilities and HSR station options.

HSR = high-speed rail; MMBtu = million British thermal units; VMT = vehicle miles traveled

The calculations in Table 3.6-28 are conservative and do not account for reductions in airplane flights statewide (intrastate) that would be diverted in favor of using the HSR system because it is faster, less expensive, and viewed as more convenient.

Operating HSR trains would require additional electrical energy. In 2040, the HSR system would require approximately 3,550,282.05 MMBtu per year of electrical energy statewide, and approximately 211,697 MMBtu per year of electrical energy for just the project section with no optional HSR station facilities incorporated. However, the net change in energy use (i.e., after the energy savings from reductions in roadway VMT are factored in) would result in an energy savings of at least -9,660,265 MMBtu per year in 2040.

Operation of the project would result in electricity consumption within the energy RSA. However, as a result of the net savings in energy, the project would have a beneficial impact on operational energy use.

Shared Passenger Track Alternative B

Impacts for Shared Passenger Track Alternative B would be equivalent to those of Shared Passenger Track Alternative A. Estimations about energy usage at LMF locations were done by calculating energy usage per square foot; because both LMF locations are anticipated to be the same square footage, their energy usages are estimated to be equivalent as well. For Shared Passenger Track Alternative B, total operational energy use would increase by 211,697 MMBtu per year, as depicted in Table 3.6-28. However, as detailed in the Shared Passenger Track Alternative A analysis, the project would reduce the amount of car rides taken by individuals and would result in energy savings of at least -9,660,265.26 MMBtu per year in 2040. Therefore, the project would result in net savings and would have a beneficial impact on operational energy use.

High-Speed Rail Station Options

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

With inclusion of the Norwalk/Santa Fe Springs HSR Station Option, impacts would be similar to those of the Shared Passenger Track Alternatives. Operational energy use would increase by an additional 17,736 MMBtu per year from operating the station, as depicted in Table 3.6-28. However, as detailed in the Shared Passenger Track Alternative A analysis, the project would reduce the amount of car rides taken by individuals and would result in energy savings of at least -9,850,989.34 MMBtu per year in 2040. Therefore, the project would result in net savings and would have a beneficial impact on operational energy use.

High-Speed Rail Station Option: Fullerton

With inclusion of the Fullerton HSR Station Option, impacts would be similar to those of the Shared Passenger Track Alternatives. Operational energy use would increase by an additional 16,843.56 MMBtu per year from operating the station, as depicted in Table 3.6-28. However, as detailed in the Shared Passenger Track Alternative A analysis, the project would reduce the amount of car rides taken by individuals and would result in energy savings of at least -9,792,611.26 MMBtu per year in 2040. Therefore, the project would result in net savings and would have a beneficial impact on operational energy use.

CEQA Conclusion

The impact under CEQA on energy resources from energy consumption during project operations would be less than significant. Operation of the project would not require an expansion of energy production. Furthermore, during operation, the project as part of the Phase 1 system would contribute to a net savings in energy expended for transportation, a project benefit. Therefore, CEQA does not require any mitigation.

3.6.7 Mitigation Measures

The Authority has identified the following public utilities and energy mitigation measure for impacts under NEPA and significant impacts under CEQA that cannot be adequately avoided or minimized by IAMFs.

3.6.7.1 PUE-MM#1: Water Demand Analysis for Water Supplies for Construction and Operation

Given the uncertainties in planning for water procurement years in advance and the various restrictions, limitations, and unknowns associated with water supplies in the project area, the Authority will prepare updated water supply analyses for the Shared Passenger Track Alternatives prior to construction and throughout the project's operational life. The Authority will also outline what needs to occur to facilitate the use of available water in the project area and identify the sources of water that will meet supply needs, if necessary.

The Authority will prepare and complete an initial water demand analysis when 90 percent engineering design plan sets are available and before the anticipated start of the construction period to assess the availability of water for construction activities throughout the approximately 30-mile project section. A subsequent water demand analysis will be prepared beginning when testing for the project commences and completed before the anticipated start of project operations. Every 5 years thereafter, a water supply analysis will be completed in coordination with water suppliers for the Shared Passenger Track Alternatives that identifies the detailed water supply needs for the ongoing operation of the project section station(s), including ARTIC, any included HSR platform and station facility options, and the LMF that is chosen and built for project operations. These analyses will describe the minimum adequate water supply for the study area during normal, dry, and multiple dry years based on the detailed project design, when more-detailed information about available water supply is known with greater certainty, and what will need to be done to facilitate use of available water in the project area. The Authority will, to the maximum extent feasible, identify the sources of water that will meet water supply needs, verify the sufficiency of water supplies, and fund any necessary expansion of water supplies and infrastructure if required to reduce impacts related to operational water use for the project section. Although the project section includes connections to the water supply infrastructure in the area, the project may not rely entirely on the existing and planned local water supply allocations, particularly in the event of a dry year or unforeseen local circumstance, such as wildfires. Based on the results of the water demand analyses, the Authority will coordinate with water suppliers to determine if allocations for additional water supply are needed for project construction along the right-of-way and for operation at the stations over the subsequent 5-year period. In the event that additional water supply is needed from the local groundwater or the State Water Project, the Authority will pay water suppliers its fair share of the State Water Project fees (per acre-foot of their allocations), which are used for building and operating the State Water Project conservation facilities.

3.6.7.2 Impact of Mitigation

Implementation of **PUE-MM#1** would not be expected to result in secondary effects, as it relates to the allocation of existing water suppliers' water supplies that would be transported to the project at the stations via the infrastructure (existing and planned) that was fully evaluated as part of the physical impact of the project section. Implementation of this mitigation measure will increase coordination between the Authority and water suppliers and is intended to alleviate any potential strain on the local water supply as a result of increased local water demand from construction and operation. Therefore, the impact of the mitigation measure would not be significant under CEQA. If, during third-party negotiations and final design, it is determined that demand for water at the chosen LMF, ARTIC, or the HSR station option would require new water supply utility infrastructure to convey water supplies to serve project construction, additional coordination with the relevant entities would be conducted as necessary. Expansion of water delivery and wastewater conveyance facilities, if required, could result in secondary or off-site environmental impacts typical of utility upgrades. These types of impacts are common to most infrastructure construction (i.e., replacement or relocation of various facilities) and are typically reduced to less-than-significant levels through adhering to applicable regulations, obtaining regulatory permits, incorporating best management practices, and applying standard mitigation measures.

Ultimately, it would be the responsibility of the Authority to ensure that the construction and operational water demand required to serve the project stations would not cause impacts on water suppliers' existing service commitments.

3.6.7.3 Early Action Projects

None of the early action projects that are evaluated as part of the project would result in significant impacts related to public utilities and energy under CEQA or result in an impact under NEPA; no mitigation measures specific to early action projects would be required.

3.6.8 NEPA Impacts Summary

This section summarizes the impacts of the Shared Passenger Track Alternatives and compares them to the anticipated impacts of the No Project Alternative. Implementation of either of the Shared Passenger Track Alternatives and inclusion of an HSR station option at Norwalk/Santa Fe Springs or Fullerton would not result in an impact on the environment.

3.6.8.1 No Project Alternative

Under the No Project Alternative, recent development trends in the project section are anticipated to continue, including growth of the regional transportation system, highly dependent on personal vehicles, to accommodate population and employment growth in the RSA. Existing highway, airport, and conventional rail systems described in adopted regional transportation plans and municipal general plans would likely be implemented. There are also planned commercial, industrial, residential, and associated infrastructure development projects such as shopping centers and wastewater conveyance upgrades. This development and continued population growth anticipated in the RSA would result in corresponding increases in demand for utility services, storm drain facilities, water use (including irrigation), communications, and gas services. This planned development and growth would also contribute to cumulative increases in demand on the existing utility and electricity infrastructure within the cumulative RSA, including increased peak- and base-period electricity demand. New utility infrastructure that would be required to support the demand associated with new commercial, residential, and industrial development is not anticipated to exceed the capacity of utility and energy service providers because the planned growth already considers whether there is a need to upgrade these utilities or if new infrastructure would be installed to accommodate the demand as projects are planned.

3.6.8.2 Shared Passenger Track Alternatives

Construction of the Shared Passenger Track Alternatives could result in temporary, intermittent, and permanent impacts on public utilities and energy, including:

- **Impacts PU&E-1 and PU&E-2:** Planned temporary and accidental interruptions to public utility service could result from construction of the project. **PUE-IAMF#3** and **PUE-IAMF#4** will ensure that planned and accidental interruptions to utilities, which could range from a few seconds within a single day to a few weeks, would be temporary and intermittent, depending on the reason for the accidental interruption or type of utility improvements to be made. Construction of the project would not result in lengthy or harmful interruption of services or require the expansion of existing or construction of new infrastructure in the RSA for the project section.
- **Impact PU&E-3:** Construction of the project would require water. Although a temporary increase in water use during construction would occur, it would not be permanent and would not require new or expanded entitlements to supply water in the RSA.
- **Impact PU&E-4:** Construction of the project would result in the relocation of stormwater and drainage utilities. **HYD-IAMF#1**, **HYD-IAMF#2**, and **HYD-IAMF#3** are included, and the project would not require or result in the construction of new stormwater drainage facilities or expansion of existing facilities outside the limits of construction of the project.
- **Impact PU&E-5:** Construction of the project would generate construction-related solid and hazardous waste. The temporary increase in solid waste during construction would not substantially affect capacity at an existing landfill in the RSA or cause a landfill to reach capacity before its projected closure date. **HMW-IAMF#4**, **HMW-IAMF#7**, and **GEO-IAMF#3** are included and would ensure that any environmental concerns on site during construction are avoided, monitored, and disposed of appropriately.
- **Impact PU&E-6:** Construction of the project is anticipated to result in conflicts with existing utilities during construction. **PUE-IAMF#1** includes design measures to minimize electricity consumption and increase collaboration with nearby utilities; **PUE-IAMF#3** and **PUE-IAMF#4**

address the relocation of utilities and the project would not require the expansion of existing or construction of new infrastructure.

- **Impact PU&E-7:** Construction of the project would result in temporarily reduced access to existing utilities within the HSR right-of-way. Reduced access to existing utilities during and after construction would not require expansion of existing or construction of new infrastructure in the RSA. **PUE-IAMF#3** and **PUE-IAMF#4** address the relocation of utilities and the project would not require the expansion of existing or construction of new infrastructure.
- **Impact PU&E-8:** Construction of the project would require upgrades of existing electric power lines. All work would be implemented pursuant to CPUC General Order 131-E, which requires coordination to avoid or reduce environmental effects.
- **Impact PU&E-9:** Construction of the project would require a temporary increase in energy consumption in the energy RSA during the construction period. **PUE-IAMF#1** is included and the project would not result in a substantial demand on regional energy supply or require substantial additional regional energy capacity.

Operation of the project could result in temporary, intermittent, and permanent impacts on public utilities and energy, including:

- **Impact PU&E-10:** Operation of the project would restrict access to any utilities in the rail right-of-way. If there are any utility conflicts caused by project construction, the project would relocate or reinforce the utilities in accessible locations.
- **Impact PU&E-11:** Operation of the project would result in a permanent increase in water use. The project would not result in new or expanded entitlements in the RSA to supply the project section with long-term operational water. **PUE-MM#1** would be implemented to mitigate impacts on the local water systems and plan for any new or expanded entitlements in the event that project operation did exceed local utility capacity.
- **Impact PU&E-12:** Operation of the project would result in a permanent increase in wastewater generation. Wastewater generation, in addition to existing treatment commitments, would not exceed the available treatment capacity of the plants in the RSA.
- **Impact PU&E-13:** During operation, the project has the potential to affect stormwater infrastructure in the project area. **HYD-IAMF#1**, **HYD-IAMF#2**, **HYD-IAMF#3**, and **HYD-IAMF#4** will effectively reduce or avoid impacts from stormwater through effective stormwater management practices and measures to manage and treat stormwater, accommodate increased rates of runoff, and improve infiltration and groundwater recharge.
- **Impacts PU&E-14 and PU&E-15:** Operation of the project would result in a permanent increase in solid and hazardous waste generation. Existing landfill capacity would be adequate during the life of the project. **HMW-IAMF#7**, **HMW-IAMF#9**, and **HMW-IAMF#10** are included as part of the project and no existing areas for hazardous waste disposal would be affected by the project.
- **Impact PU&E-16:** Operation of the HSR system is expected to result in a permanent decrease in automobile VMT and to reduce energy consumption by automobiles, resulting in an overall reduction in energy use for intercity and commuter travel. Operation of the project would result in electricity consumption within the energy RSA. As a result of the net savings in energy from a reduction in VMT in the energy RSA, the project is expected to have a permanent beneficial impact on operational energy use.

Table 3.6-29 provides a comparison of the potential impacts of the project alternatives followed by a summary of the impacts.

Table 3.6-29 Comparison of Project Alternative Impacts on Public Utilities and Energy

Impacts	Shared Passenger Track Alternative A	Shared Passenger Track Alternative B	With Inclusion of HSR Station Option		NEPA Conclusion Before Mitigation	Mitigation	NEPA Conclusion Post Mitigation			
			Norwalk/Santa Fe Springs	Fullerton			Shared Passenger Track Alternative A	Shared Passenger Track Alternative B	With Inclusion of HSR Station Option	
									Norwalk/Santa Fe Springs	Fullerton
Impact PU&E-1: Temporary Interruption of Utility Service	Temporary interruptions to utility services would be temporary and for short durations. Project features would include the contractor notifying the public of planned outages through a combination of communication media within the jurisdiction of the affected service providers (PUE-IAMF#3). The contractor would also prepare a technical memorandum documenting how construction activities will be coordinated with service providers to minimize or avoid interruptions to utility services (PUE-IAMF#4).	Similar to Shared Passenger Track Alternative A. The 15th Street LMF has potential conflicts with an additional 29 utilities, but a majority would be protected in place and construction would only require the relocation of five utilities: three storm sewers, one storm drain, and one overhead electrical line. PUE-IAMF#3 and PUE-IAMF#4 would be included to minimize, avoid, and prevent significant impacts on utility service.	Same impacts as the Shared Passenger Track Alternatives within the station area.	Same impacts as the Shared Passenger Track Alternatives within the station area. Although construction of the HSR station elements would result in an additional five utility conflicts that would need to be protected in place (two storm drains, two sewer conduits, and one water conduit), PUE-IAMF#3 and PUE-IAMF#4 would similarly be included to minimize, avoid, and prevent significant impacts on utility service.	No adverse effect (all alternatives and HSR station options)	No mitigation needed	N/A	N/A	N/A	N/A
Impact PU&E-2: Accidents and Disruption of Services	Accidents and disruption of utility services could potentially occur during construction. Accidental disruptions would be limited in occurrence and impacts would be short term as a result of the established practices for utility identification and notification. The contractor would prepare a technical memorandum documenting how construction activities will be coordinated with service providers to minimize or avoid interruptions to utility services.	Same as Shared Passenger Track Alternative A.	Same impacts as the Shared Passenger Track Alternatives within the station area.	Same impacts as the Shared Passenger Track Alternatives within the station area.	No adverse effect (all alternatives and HSR station options)	No mitigation needed	N/A	N/A	N/A	N/A
Impact PU&E-3: Effects from Water Demand During Construction	Construction including the 26th Street LMF, ARTIC, and modifications at Norwalk/Santa Fe Springs and Fullerton would require 90.7 AFY of water annually. The short-term increase in water demand would be addressed by mitigation requiring a preconstruction water supply analysis to ensure adequate water supplies for construction activities.	Similar to Shared Passenger Track Alternative A. Construction including the 15th St LMF, ARTIC, and modifications at Metrolink stations at Norwalk/Santa Fe Springs and Fullerton would require 91.5 AFY of water annually.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. Inclusion of the Norwalk/Santa Fe Springs HSR Station Option would require an additional 5.3 AFY annually.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. Inclusion of the Fullerton HSR Station Option would require an additional 5.5 AFY annually.	Adverse effect (all alternatives and HSR station options)	PUE-MM#1	No adverse effect	No adverse effect	No adverse effect	No adverse effect

Impacts	Shared Passenger Track Alternative A	Shared Passenger Track Alternative B	With Inclusion of HSR Station Option		NEPA Conclusion Before Mitigation	Mitigation	NEPA Conclusion Post Mitigation			
			Norwalk/Santa Fe Springs	Fullerton			Shared Passenger Track Alternative A	Shared Passenger Track Alternative B	With Inclusion of HSR Station Option	
									Norwalk/Santa Fe Springs	Fullerton
Impact PU&E-4: Effects on Stormwater Infrastructure During Construction	During construction, the project has the potential to affect stormwater infrastructure in the project area. The project will incorporate a SWPPP and construction best management practices to avoid or minimize erosion and sedimentation from increased rates and volumes of flows.	Similar to Shared Passenger Track Alternative A. Because construction of the 15th Street LMF would require a greater area of disturbance than the 26th Street LMF, effects related to stormwater could be experienced in more areas under Shared Passenger Track Alternative B.	Same impacts as the Shared Passenger Track Alternatives within the station area.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. Inclusion of the Fullerton HSR Station Option would disturb up to an additional 10 acres of land.	No adverse effect (all alternatives and HSR station options)	No mitigation needed	N/A	N/A	N/A	N/A
Impact PU&E-5: Effects from Waste Generation During Construction	Construction would result in 1.74 million cubic yards of solid waste from excavation and demolition activities. The Authority's contractor would handle, store, and dispose of hazardous waste in accordance with applicable requirements, including the Resource Conservation and Recovery Act. Project features would include requirements that a certified hazardous waste collection company transport the waste to an authorized hazardous waste management facility for recycling or disposal.	Construction would result in 1.83 million cubic yards of solid waste from excavation and demolition activities. The Authority's contractor would comply with applicable requirements, including the Resource Conservation and Recovery Act, and a certified hazardous waste collection company would transport the waste to an authorized hazardous waste management facility for recycling or disposal.	Same impacts as the Shared Passenger Track Alternatives within the station area.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. Construction of the Fullerton HSR station platform, facilities, and parking would generate an additional 33,874 cubic yards of construction-related solid and hazardous waste from necessary demolition of additional buildings and facilities.	No adverse effect (all alternatives and HSR station options)	No mitigation needed	N/A	N/A	N/A	N/A
Impact PU&E-6: Conflicts with Existing Utilities	Pursuant to utility agreements negotiated between the Authority and the utility owners, the Authority would work with utility owners during final engineering design and construction of the project to relocate 264 major utility lines and protect in place 692 utility lines. Shared Passenger Track Alternative A would also require the removal, extension, or realignment or abandonment of 22 utility lines. Project features would include the contractor notifying the public of planned outages through a combination of communication media within the jurisdiction of the affected service providers. The contractor would also prepare a technical memorandum documenting how construction activities will be coordinated with service providers to minimize or avoid interruptions to utility services.	Similar to Shared Passenger Track Alternative A. The Authority would relocate 269 major utility lines and protect in place of 716 utility lines. Shared Passenger Track Alternative B would also require the removal, extension, or realignment or abandonment of 22 utility lines. Shared Passenger Track Alternative B would similarly include project features to minimize potential impacts related to outages and disruptions to service.	Same impacts as the Shared Passenger Track Alternatives within the station area.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. Inclusion of the Fullerton HSR Station Option would result in an additional five utility conflicts that would need to be protected in place.	No adverse effect (all alternatives and HSR station options)	No mitigation needed	N/A	N/A	N/A	N/A

Impacts	Shared Passenger Track Alternative A	Shared Passenger Track Alternative B	With Inclusion of HSR Station Option		NEPA Conclusion Before Mitigation	Mitigation	NEPA Conclusion Post Mitigation			
			Norwalk/Santa Fe Springs	Fullerton			Shared Passenger Track Alternative A	Shared Passenger Track Alternative B	With Inclusion of HSR Station Option: Norwalk/Santa Fe Springs	With Inclusion of HSR Station Option: Fullerton
Impact PU&E-7: Reduced Access to Existing Utilities in the HSR Right-of-Way During Construction	Reduced access to existing utilities during and after construction would not require expansion of existing or construction of utility infrastructure. Access would be ensured through coordination with service providers.	Same as Shared Passenger Track Alternative A.	Same impacts as the Shared Passenger Track Alternatives within the station area.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. The project would protect in place the five utility conflicts caused by project construction where they are still accessible.	No adverse effect (all alternatives and HSR station options)	No mitigation needed	N/A	N/A	N/A	N/A
Impact PU&E-8: Effects from Upgrade or Construction of Power Lines	The project would require an upgrade of power lines and comply with CPUC General Order 131-E.	Same as Shared Passenger Track Alternative A.	Same impacts as the Shared Passenger Track Alternatives within the station area.	Same impacts as the Shared Passenger Track Alternatives within the station area.	No adverse effect (all alternatives and HSR station options)	No mitigation needed	N/A	N/A	N/A	N/A
Impact PU&E-9: Construction Energy Consumption	Construction would require 961,480 MMBtu over the course of 7 years. The design of the project would include the use of energy-saving measures during construction to minimize both electricity and fossil fuel consumption. Energy expended on construction would be recovered in about 1 month based on anticipated 2040 ridership.	Similar to Shared Passenger Track Alternative A. Construction would require 1,006,271 MMBtu. The design of the project would include the use of energy-saving measures during construction to minimize both electricity and fossil fuel consumption. Energy expended on construction would be recovered in about 1 month.	Similar impacts to those of the Shared Passenger Track Alternatives. Construction of the Norwalk/Santa Fe Springs HSR Station Option would require an additional 21,235 MMBtu. The design of the project would include the use of energy-saving measures during construction to minimize both electricity and fossil fuel consumption. Energy expended on construction would be recovered in about 1 month.	Similar impacts to those of the Shared Passenger Track Alternatives. Construction of the Fullerton HSR Station Option would require an additional 19,127 MMBtu. The design of the project would include the use of energy-saving measures during construction to minimize both electricity and fossil fuel consumption. Energy expended on construction would be recovered in about 1 month.	No adverse effect (all alternatives and HSR station options)	No mitigation needed	N/A	N/A	N/A	N/A
Impact PU&E-10: Reduced Access to Existing Utilities in the HSR Right-of-Way During Operation	The right-of-way would be fenced and secured after construction. If there are any utility conflicts caused by project construction, the project would relocate or reinforce the utilities where they are still accessible.	Same as Shared Passenger Track Alternative A.	Same impacts as the Shared Passenger Track Alternatives within the station area.	Same impacts as the Shared Passenger Track Alternatives within the station area.	No adverse effect (all alternatives and HSR station options)	No mitigation needed	N/A	N/A	N/A	N/A

Impacts	Shared Passenger Track Alternative A	Shared Passenger Track Alternative B	With Inclusion of HSR Station Option		NEPA Conclusion Before Mitigation	Mitigation	NEPA Conclusion Post Mitigation			
			Norwalk/Santa Fe Springs	Fullerton			Shared Passenger Track Alternative A	Shared Passenger Track Alternative B	With Inclusion of HSR Station Option	
									Norwalk/Santa Fe Springs	Fullerton
Impact PU&E-11: Operational Water Supply Demand	Operation of Shared Passenger Track Alternative A would require 294.2 AFY less than the current water usage for the land within the project footprint, but would require more water at the 26th Street LMF and ARTIC. The Authority would address the potential impacts on local and regional water suppliers through completion of a water demand analysis for water supplies at stations for operation, as required through mitigation in this Draft EIR/EIS.	Operation of Shared Passenger Track Alternative B would require 345.5 AFY less than the current water usage for the land within the project footprint, but would require more water at the 15th Street LMF and ARTIC. The Authority would address the potential impacts on local and regional water suppliers through a water demand analysis for water supplies at stations for operation, as required through mitigation in this Draft EIR/EIS.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. Operational water demand associated with the Norwalk/Santa Fe Springs HSR Station Option would amount to 42.0 AFY, which would be an increase of 13.4 AFY compared to existing uses.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. Operational water demand associated with the Fullerton HSR Station Option would amount to 41.7 AFY, which would be an increase of 32.6 AFY compared to existing uses.	Adverse effect (all alternatives and HSR station options)	PUE-MM#1	No adverse effect	No adverse effect	No adverse effect	No adverse effect
Impact PU&E-12: Operational Wastewater Service Demand	Operation of the 26th Street LMF and ARTIC would generate more than 108,649 gallons per day of wastewater flows. The 26th Street LMF and ARTIC wastewater flows, in addition to existing treatment commitments, would not exceed the available wastewater treatment capacity of local providers.	Similar to Shared Passenger Track Alternative A. Operation of the 15th Street LMF and ARTIC would generate 111,220 gallons per day of wastewater flows. The 15th Street LMF and ARTIC wastewater flows, in addition to existing treatment commitments, would not exceed the available wastewater treatment capacity of local providers.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. Wastewater flows associated with the Norwalk/Santa Fe Springs HSR Station Option would be an additional 18,727.5 gallons per day, which could be accommodated by the wastewater treatment provider.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. Wastewater flows associated with the Fullerton HSR Station Option would be an additional 18,582.5 gallons per day, which could be accommodated by the wastewater treatment provider.	No adverse effect (all alternatives and HSR station options)	No mitigation needed	N/A	N/A	N/A	N/A
Impact PU&E-13: Effects on Storm Drain Facilities During Operation	During operation, the project has the potential to affect stormwater infrastructure in the project area. The design of the project would include the detainment of on-site stormwater runoff, improvement of infiltration rates, and minimization of disruptions to the movement of water. Stormwater management practices and measures, including permeable surfaces and detention facilities, will also be incorporated into the project design.	Same as Shared Passenger Track Alternative A.	Same impacts as the Shared Passenger Track Alternatives within the station area.	Same impacts as the Shared Passenger Track Alternatives within the station area.	No adverse effect (all alternatives and HSR station options)	No mitigation needed	N/A	N/A	N/A	N/A

Impacts	Shared Passenger Track Alternative A	Shared Passenger Track Alternative B	With Inclusion of HSR Station Option		NEPA Conclusion Before Mitigation	Mitigation	NEPA Conclusion Post Mitigation			
			Norwalk/Santa Fe Springs	Fullerton			Shared Passenger Track Alternative A	Shared Passenger Track Alternative B	With Inclusion of HSR Station Option	
									Norwalk/Santa Fe Springs	Fullerton
Impact PU&E-14: Effects on Solid Waste During Operation	Operation would result in 538 tons of solid waste from operation activities at the 26th Street LMF. Of the eight landfills that serve the RSA, all have sufficient capacity to accommodate operational waste disposal.	Same as Shared Passenger Track Alternative A.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. Operation of the station would generate slightly more solid waste.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. Operation of the station would generate slightly more solid waste.	No adverse effect (all alternatives and HSR station options)	No mitigation needed	N/A	N/A	N/A	N/A
Impact PU&E-15: Effects from Hazardous Waste Generation	Operation would result in small amounts of hazardous waste. Exact amounts are incalculable at this time because of high variability in circumstances related to operations. Project features include the requirement that a certified hazardous waste collection company deliver the waste to an authorized hazardous waste management facility for recycling or disposal. The Authority would also be required to prepare a hazardous materials management business plan and hazardous materials monitoring plans.	Same as Shared Passenger Track Alternative A.	Same impacts as the Shared Passenger Track Alternatives within the station area.	Same impacts as the Shared Passenger Track Alternatives within the station area.	No adverse effect (all alternatives and HSR station options)	No mitigation needed	N/A	N/A	N/A	N/A
Impact PU&E-16: Operational Energy Demand	Operations would result in a net decrease in regional energy consumption of an estimated 9,660,265 MMBtu per year in 2040.	Same as Shared Passenger Track Alternative A.	Similar impacts to those of the Shared Passenger Track Alternatives. Inclusion of the Norwalk/Santa Fe Springs HSR Station Option would generate an additional energy demand of 17,736 MMBtu and ultimately result in a decrease in regional energy consumption by 9,850,989 MMBtu.	Similar impacts to those of the Shared Passenger Track Alternatives. Inclusion of the Fullerton HSR Station Option would generate an additional energy demand of 16,843 MMBtu and ultimately result in a decrease in regional energy consumption by 9,792,611 MMBtu.	No adverse effect (all alternatives and HSR station options)	No mitigation needed	N/A	N/A	N/A	N/A

AFY = acre-feet per year; ARTIC = Anaheim Regional Transportation Intermodal Center; Authority = California High-Speed Rail Authority; Btu = British thermal unit; CPUC = California Public Utilities Commission; EIR/EIS = environmental impact report/environmental impact statement; HSR = high-speed rail; LMF = light maintenance facility; MMBtu = million British thermal units; N/A = not applicable; NEPA = National Environmental Policy Act; SWPPP = stormwater pollution prevention plan

3.6.9 CEQA Significance Conclusions

As described in Section 3.6.4.5, Method for Determining Significance Under CEQA, the impacts of project actions under CEQA are evaluated against thresholds to determine whether a project action would result in no impact, a less-than-significant impact, or a significant impact. Table 3.6-30 contains a summary of the CEQA determination for construction and operational impacts for the project.

Table 3.6-30 CEQA Significance Conclusions for Public Utilities and Energy

Impact	Impact Description and Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation	Source of Impact
Construction				
Impact PU&E-1: Temporary Interruption of Utility Service	Less than significant for all alternatives. The planned utility interruptions would be temporary and limited to short durations during construction and would not result in a lengthy or harmful interruption of service. Through effective coordination and notification activities, project features will minimize potential effects on public utilities.	No mitigation measures are required.	Not applicable	All alternatives and options
Impact PU&E-2: Accidents and Disruption of Services	Less than significant for all alternatives. Through effective coordination and notification activities, project features will minimize potential accidents and disruption of public utilities.	No mitigation measures are required.	Not applicable	All alternatives and options
Impact PU&E-3: Effects from Water Demand During Construction	Potentially significant for all alternatives. Despite current data that suggest that there would be adequate water supplies available from existing water suppliers in the region to supply the quantity needed for construction, water supplies are uncertain in the region and are subject to frequent change.	PUE-MM#1	Less than significant	All alternatives and options
Impact PU&E-4: Effects on Stormwater Infrastructure During Construction	Less than significant for all alternatives. The project requires the development of a construction stormwater pollution prevention program and construction best management practices to maintain preproject hydrology and manage the amount of stormwater runoff from construction sites and therefore avoid the project contributing to exceedances of capacity of stormwater drains and stormwater facilities during storm events.	No mitigation measures are required.	Not applicable	All alternatives and options

Impact	Impact Description and Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation	Source of Impact
Impact PU&E-5: Effects from Waste Generation During Construction	Less than significant for all alternatives. Solid waste facilities and hazardous waste facilities within the RSA would have sufficient permitted capacity to accept solid and hazardous waste generated by project construction. Also, project features will ensure that the amount of waste generated will be minimized through reuse and recycling, as directed in the Sustainability Policy Directive.	No mitigation measures are required.	Not applicable	All alternatives and options
Impact PU&E-6: Conflicts with Existing Utilities	Less than significant for all alternatives. Through effective coordination and notification activities, project features will minimize potential conflicts with existing public utilities.	No mitigation measures are required.	Not applicable	All alternatives and options
Impact PU&E-7: Reduced Access to Existing Utilities in the HSR Right-of-Way During Construction	Less than significant for all alternatives. The HSR right-of-way would be permanently fenced and secured during construction. The project would follow common practice of utility districts to coordinate and schedule field visits to their facilities, which would provide sufficient access and avoid problematic limits or restrictions on access to existing facilities. If there are any utility conflicts caused by project construction, the project would relocate or reinforce the utilities where they are still accessible.	No mitigation measures are required.	Not applicable	All alternatives and options
Impact PU&E-8: Effects from Upgrade or Construction of Power Lines	Less than significant for all alternatives. The project will comply with CPUC General Order 131-E, which requires prefiling consultation, preparation of draft CEQA documents, follow-up design, and environmental review for transmission line upgrades or construction. Additionally, the project will effectively minimize energy consumption during construction through implementation of the Authority's Sustainability Policy and implementation of specific sustainability requirements included by the Authority in the contract for design-build services.	No mitigation measures are required.	Not applicable	All alternatives and options
Impact PU&E-9: Construction Energy Consumption	Less than significant for all alternatives. The existing electrical grid that serves the project site would have adequate capacity for project construction demand.	No mitigation measures are required.	Not applicable	All alternatives and options

Impact	Impact Description and Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation	Source of Impact
Operation				
Impact PU&E-10: Reduced Access to Existing Utilities in the HSR Right-of-Way During Operation	Less than significant for all alternatives. The project right-of-way would be fenced and secured after construction. The project would follow common practice of utility districts to coordinate and schedule field visits to their facilities, which would provide sufficient access and avoid problematic limits or restrictions on access to existing facilities. If there are any utility conflicts caused by project construction, the project would relocate or reinforce the utilities where they are still accessible.	No mitigation measures are required.	Not applicable	All alternatives and options
Impact PU&E-11: Operational Water Supply Demand	Potentially significant for all alternatives. Although water demand would be a small fraction of the total supply for those districts, this increase could exceed existing and projected future supply during normal, dry, and multiple dry years and potentially result in impacts on the service providers' existing service commitments, particularly in the face of uncertain water supplies in the region.	PUE-MM#1	Less than significant	All alternatives and options
Impact PU&E-12: Operational Wastewater Service Demand	Less than significant for all alternatives. Wastewater generated during operation would not exceed the available treatment capacity of the plants that would serve the project.	No mitigation measures are required.	Not applicable	All alternatives and options
Impact PU&E-13: Effects on Storm Drain Facilities During Operation	Less than significant for all alternatives. The project would not require or result in the relocation or construction of new or expanded stormwater drainage facilities that could result in significant environmental impacts. The project will effectively reduce or avoid impacts from stormwater through implementing project features that include effective stormwater management practices and measures to manage and treat stormwater, accommodate increased rates of runoff, and improve infiltration and groundwater recharge.	No mitigation measures are required.	Not applicable	All alternatives and options

Impact	Impact Description and Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation	Source of Impact
Impact PU&E-14: Effects on Solid Waste During Operation	Less than significant for all alternatives. The existing landfill capacity would be adequate for the project; therefore, the project would not trigger the need for new or expanded facilities. Additionally, with implementation of regulatory requirements during operations, the project would not exceed state or local standards and would not impair the attainment of solid waste reduction goals.	No mitigation measures are required.	Not applicable	All alternatives and options
Impact PU&E-15: Effects from Hazardous Waste Generation	Less than significant for all alternatives. Waste generation during operations would not exceed the capacity of permitted solid and hazardous waste landfills and would be disposed of in a manner consistent with applicable regulations. Solid waste landfills within the RSA have sufficient permitted capacity for disposal of solid waste that would be generated during operation of the project alternatives; solid and hazardous waste management for the project alternatives would comply with federal, state, and local requirements related to solid and hazardous waste.	No mitigation measures are required.	Not applicable	All alternatives and options
Impact PU&E-16: Operational Energy Demand	Less than significant for all alternatives. Operation of the project would result in a net decrease in transportation energy use.	No mitigation measures are required.	Not applicable	All alternatives and options

Authority = California High-Speed Rail Authority; CEQA = California Environmental Quality Act; CPUC = California Public Utilities Commission; HSR = high-speed rail; LMF = light maintenance facility; RSA = resource study area