3.12 Public Utilities and Energy

3.12.1 Introduction

This section identifies the major public utilities likely to occur within the Tier 1/Program EIS/EIR Study Area and evaluates the potential effects of the No Build Alternative and Build Alternative Options on public utilities and energy resources.

3.12.2 Regulatory Framework

In accordance with NEPA (42 USC Section 4321 et seq.), CEQ regulations implementing NEPA (40 CFR Parts 1501–1508); FRA's Procedures for Considering Environmental Impacts (64 FR 28545, May 26, 1999); and CEQA, FRA identified public utilities and energy resources within the Tier 1/Program EIS/EIR Study Area and evaluated the potential impacts on those resources as a result of implementing the Build Alternative Options.

Federal

Energy and Independence Security Act of 2007

The federal government adopted the Energy and Independence Security Act of 2007 on December 19, 2007. The act aimed to move the U.S. toward greater energy independence and security; increase the production of clean renewable fuels; protect consumers; increase the efficiency of products, buildings, and vehicles; promote research on and deploy GHG capture and storage options; improve the energy performance of the federal government and increase U.S. energy security; develop renewable fuel production; and improve vehicle fuel economy. Primary provisions of the act included increasing Corporate Average Fuel Economy standards; advancing vehicle technology to reduce fuel consumption; promoting the creation of biomass-based diesel fuel; establishing greater energy efficiency standards for residential appliances and equipment; and increasing building efficiency for residential, commercial, industrial, institutional, and federal buildings.

Energy Policy Act of 2005

The Energy Policy Act of 2005 established a comprehensive, long-term federal energy policy to be implemented by the U.S. Department of Energy that addresses energy production in the U.S., including oil, gas, coal, and alternative forms of energy, as well as energy efficiency and tax incentives. Energy efficiency and tax incentive programs include credits for the construction of new

energy efficient homes, production, or purchase of energy efficient appliances and loan guarantees for entities that develop or use innovative technologies that avoid the production of GHGs. Another provision of the act increases the amount of biofuel that must be mixed with gasoline sold in the U.S.

Federal Energy Regulatory Commission

The Federal Energy Regulatory Commission is an independent agency that regulates the interstate transmission of natural gas, oil, and electricity. If there is a need for relocation of a certificated interstate pipeline, the utility company has to obtain approval from the Federal Energy Regulatory Commission for the relocation. If the relocation also requires new easements, local approval would also be required.

United States Department of Transportation Research and Special Programs Administration

The Research and Special Programs Administration is responsible for carrying out the duties regarding pipeline safety set forth in 49 USC Section 60101 et seq. and 49 CFR Part 190.1. The regulations require operators of gas pipelines to participate in a public safety program, such as a one-call system that would notify the operator of any proposed demolition, excavation, tunneling, or construction that would take place near or affect the facility.

State

Assembly Bill 2076, Reducing Dependence on Petroleum

The California Energy Commission (CEC) and the California ARB are directed by AB 2076 (passed in 2000) to develop and adopt recommendations for reducing dependence on petroleum. A performance-based goal is to reduce petroleum demand to 15 percent less than 2003 demand by 2020.

California Green Building Standards

Title 24 of the CCR, Part 11, or CALGreen, sets standards for sustainable building design for residential and non-residential buildings in California. It also outlines sustainable construction practices applicable to planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental quality. 2013 CALGreen became effective on January 1, 2014, and mandated that permitted new residential and non-residential building construction, demolition, and certain additions and alterations must recycle and/or salvage for reuse a minimum of 50 percent of the non-hazardous construction and demolition debris generated during a project (CALGreen Sections 4.408, 5.408, 301.1.1, and 301.3). 2016 CALGreen became effective January 1, 2017 and increased the recycle and/or salvage mandate to 65 percent

for new residential and non-residential building construction, demolition, and certain additions and alterations (2016 CALGreen Sections 4.408 and 5.408). Although the 2019 CALGreen became effective January 1, 2020, no changes were made to the construction waste management requirements from 2016 CALGreen (California Department of Resources Recycling and Recovery 2020a).

California Public Utilities Commission

The CPUC provides guidance to multiple laws and general orders which regulate the provision of privately owned utilities in California and the safety of both publicly and privately owned railroad and rail transit companies/agencies, as well as rail crossings.

Integrated Waste Management Act (Assembly Bill 939)

AB 939, enacted in 1989, mandates a reduction of waste being disposed and establishes an integrated framework for program implementation, solid waste planning, and solid waste facility and landfill compliance. The California Integrated Waste Management Board oversees a disposal reporting system and facility and program planning. On January 1, 2010, all California Integrated Waste Management Board duties and responsibilities, along with the Division of Recycling of the Department of Conservation, transferred to California Department of Resources Recycling and Recovery, which is under the jurisdiction of the Natural Resources Agency.

Office of the State Fire Marshal, Pipeline Safety Division

The Office of the State Fire Marshal has exclusive safety regulatory and enforcement authority over approximately 6,500 miles of intrastate hazardous liquid transportation pipelines.

Senate Bill 1389, Chapter 568, Statutes of 2002

The CEC is responsible for forecasting future energy needs for the state and developing renewable energy resources and alternative renewable energy technologies for buildings, industry, and transportation. SB 1389 (Chapter 568, Statutes of 2002) requires the CEC to prepare a biennial integrated energy policy report assessing major energy trends and issues facing the state's electricity, natural gas, and transportation fuel sectors. The report is also intended to provide policy recommendations to conserve resources; protect the environment; and ensure reliable, secure, and diverse energy supplies. The *2019 Integrated Energy Policy Report*, the most recent report required under SB 1389, was released to the public in February 2020 (CEC 2020).

Regional

Goals and policies related to public utilities and energy and applicable to the Tier 1/Program EIS/EIR were identified in the Los Angeles, Orange, San Bernardino, and Riverside Counties' general plans.

Los Angeles County 2035 General Plan

The Los Angeles County General Plan has several goals and policies that guide the provision of public services and facilities, including:

- Goal PS/F 1: A coordinated, reliable, and equitable network of public facilities that preserves resources, ensures public health and safety, and keeps pace with planned development;
- Goal PS/F 2: Increased water conservation efforts;
- Goal PS/F 3: Increased local water supplies through the use of new technologies;
- Goal PS/F 4: Reliable sewer and urban runoff conveyance treatment systems;
- Goal PS/F 5: Adequate disposal capacity and minimal waste and pollution; and
- Goal PS/F 6: A county with adequate public utilities.

Orange County General Plan

The Orange County General Plan has several goals, objectives, and policies for general public services and facilities and energy, including:

- Public Service Goal 1: Provide a network of public services and facilities that are integrated, complementary, and compatible with other countywide regional land use and development goals;
- Public Service Goal 2: Encourage funding and development of public services and facilities to meet the county's existing and future demand;
- Wastewater System Goal 1: Support the planning and development of a wastewater system to meet both the county's demand and attain water quality goals;
- Energy Resources Goal 1: Maximize the conservation and wise use of energy resources in all residences, businesses, public institutions, and industries in Orange County;
- Energy Resources Goal 2: Encourage the utilization of existing energy resources to their highest potential and the development of alternative energy sources consistent with sound energy conservation practices and techniques to meet the county's future energy demand; and

- Energy Resources Goal 3: Maximize the conservation of energy resources in all future land use and transportation planning decisions.

County of Riverside General Plan

The County of Riverside General Plan anticipates an increase in population in the county; therefore, the plan dictates that development should only occur where adequate public facilities and services are available or are planned for at the time of development.

- LU 5.1: Ensure that development does not exceed the ability to adequately provide supporting infrastructure and services, such as libraries, recreational facilities, educational and day care centers transportation systems, and fire/police/medical services;
- LU 5.2: Monitor the capacities of infrastructure and services in coordination with service providers, utilities, and outside agencies and jurisdictions to ensure that growth does not exceed acceptable levels of service;
- LU 5.3: Review all projects for consistency with individual urban water management plans; and
- LU 5.4: Ensure that development and conservation land uses do not infringe upon existing essential public facilities and public utility corridors, which include county regional landfills, fee-owned ROWs, and permanent easements, whose true land use is that of public facilities. This policy will ensure that the public facilities designation governs over what otherwise may be inferred by the large-scale general plan maps.

County of San Bernardino General Plan

The San Bernardino County General Plan has several goals and policies for public facilities, including:

- Goal CI 10: Ensure timely development of public facilities and the maintenance of adequate service levels for these facilities to meet the needs of current and future county residents;
- Goal CI 11: The county will coordinate and cooperate with governmental agencies at all levels to ensure safe, reliable, and high-quality water supply for all residents and ensure prevention of surface and groundwater pollution;
- Goal CI 12: The county will ensure adequate wastewater collection, treatment, and disposal consistent with the protection of public health and water quality;
- Goal CI 14: The county will ensure a safe, efficient, economical, and integrated solid waste management system that considers all wastes generated within the county, including

agricultural, residential, commercial, and industrial wastes, while recognizing the relationship between disposal issues and the conservation of natural resources; and

- Goal CI 18: The county will ensure efficient and cost-effective utilities that serve the existing and future needs of people in the unincorporated areas are provided.

Local and Tribal Governments

Regulations from cities, local agencies, and tribal governments would be identified in the Tier 2/Project-level analysis once site-specific rail infrastructure improvements and station facilities are known.

3.12.3 Methods for Evaluating Environmental Effects

The methodology for this evaluation consists of using existing data to identify public utilities and potential energy resources within the Tier 1/Program EIS/EIR Study Area for each Build Alternative Option and evaluating the potential level of effect or impact that each Build Alternative Option could have if constructed. For purposes of this Tier 1/Program EIS/EIR, utilities include natural gas, water, electricity, sewage, and communication systems. Available utility GIS data was overlaid on aerial photography to map majority utilities that occur within the Tier 1/Program EIS/EIR Study Area, including those that could be affected by development of planned stations.

The limitation of this Tier 1/Program EIS/EIR evaluation is that only utilities with publicly available information have been identified. A comprehensive field and records search would be necessary in Tier 2/Project-level analysis to identify all potentially affected utilities, including water distribution lines, minor gas lines, sewer lines, irrigation canals, and telephone and fiber optic lines.

Assessing energy use for the Program requires consideration of construction activities within the Program Corridor to identify potential conflicts with energy demand and inefficient usage. Because design specifics are not known at this time, the effects on energy consumption are considered qualitatively in this Tier 1/Program EIS/EIR. A detailed quantitative assessment of the change in overall energy consumption resulting from Tier 2/Project-level implementation would be considered during the Tier 2/Project-level analysis. In the absence of specific details regarding construction activities at this time, a qualitative assessment of anticipated energy consumption is presented along with potential mitigation measures strategies that may be required to minimize the wasteful use of energy.

The operational energy effects of the Program were evaluated by quantifying the net effect on energy that would result from shifts in transportation modes. Some people would choose to take the train instead of driving in a personal vehicle, resulting in reduced VMT and fuel and energy use. To quantify the energy reductions, the following steps were taken.

- Fuel efficiency estimates (i.e., mileage per gallon) were quantified by dividing total regional VMT and total regional fuel consumption for light-duty vehicles and motorcycles in the SCAG region for 2024 and 2044, and for gasoline and diesel vehicles.
- The VMT reductions resulting from the Program (Table 3.12-1) were divided by the fuel efficiency estimates to quantify total fuel reductions.
- Fuel reductions were converted to British thermal units (BTU) of energy using gasoline and diesel energy content values from the U.S. Energy Information Administration (EIA; U.S. EIA 2017).

Table 3.12-1. Estimate of Build Alternative Ridership and Vehicle Miles Traveled Reductions per Day

Projection Year	Ridership Estimate Range	VMT Reduction Estimate Range
Opening Year 2024	521–710	43,835–57,534
Future Year 2044	830–1,128	73,972–95,890

Notes:

VMT=vehicle miles traveled

Tier 1/Program EIS/EIR Study Area

This service-level evaluation is limited to a desktop evaluation of the data sources described in Section 3.12.3. The Tier 1/Program EIS/EIR Study Area was combined with GIS overlays to identify potential utilities that could be affected by the Program. These potential utilities were identified on a broad scale using available mapping information. A detailed description of the Tier 1/Program EIS/EIR Study Area is provided in Section 3.1, Introduction to Environmental Analysis.

Data Resources

Data from key utility service providers, available county GIS data and general plans, and Google Earth Pro were used to conduct an inventory of pipelines, transmission lines, and wastewater facilities located within the Tier 1/Program EIS/EIR Study Area. Data for the energy analysis used information for the SCAG region for 2024 and 2044, which was obtained from the California ARB's EMFAC2017 emissions database.

Related Resources

This evaluation incorporates data and analysis from related resources to contribute to the assessment of public utilities and energy assessment. These related resources are identified in Table 3.12-2.

Table 3.12-2. Related Resource Inputs for Public Utilities and Energy Assessment

Resource	Input for Public Utilities and Energy Assessment
Transportation (Section 3.3)	Changes in VMT, ridership, and service levels were identified.
Air Quality and Greenhouse Gases (Section 3.5)	EMFAC2017 – Vehicle emissions based on available traffic data were identified. Net GHG emissions changes that occur from potential losses or savings in transportation energy as a result of net VMT were determined.

Notes:

GHG=greenhouse gas; VMT=vehicle miles traveled

3.12.4 Affected Environment

The Program Corridor crosses a large geographic area within Southern California, spanning approximately 144 miles from its western terminus in Los Angeles to its eastern terminus in Coachella. The Program Corridor occurs within an existing railroad corridor that traverses areas that have predominately been heavily modified for urban purposes, especially in the Western Section, although some areas occur in or adjacent to lands that are undeveloped or contain natural vegetation. Much of the Program Corridor from Los Angeles to Redlands is urbanized. The Eastern Section of the Program Corridor is less urbanized with vacant land comprising the largest land use category within the Tier 1/Program EIS/EIR Study Area.

Public Utilities

In general, the geographic sections of the Program Corridor can be characterized as urban and rural areas. These areas typically include above-ground and underground electrical transmission lines, above-ground electrical substations, and underground natural gas and water pipelines that provide power, natural gas, and water to residential, business, manufacturing, and agricultural land uses. The greatest densities of utilities occur in urban areas where there are a greater number of residential, business, and manufacturing uses, whereas lower densities of utilities occur in rural areas and areas that are mainly used for agricultural purposes.

Within the Tier 1/Program EIS/EIR Study Area, key providers of energy include the Los Angeles Department of Water and Power, Southern California Edison, and Imperial Irrigation District. Each of these energy providers has a diverse power production portfolio that consist of a variety of renewable and non-renewable sources. Within the Tier 1/Program EIS/EIR Study Area, there are also sub-regional energy providers that supply electricity to customers in local municipalities. Natural gas service within the Tier 1/Program EIS/EIR Study Area is provided by the Southern California Gas Company.

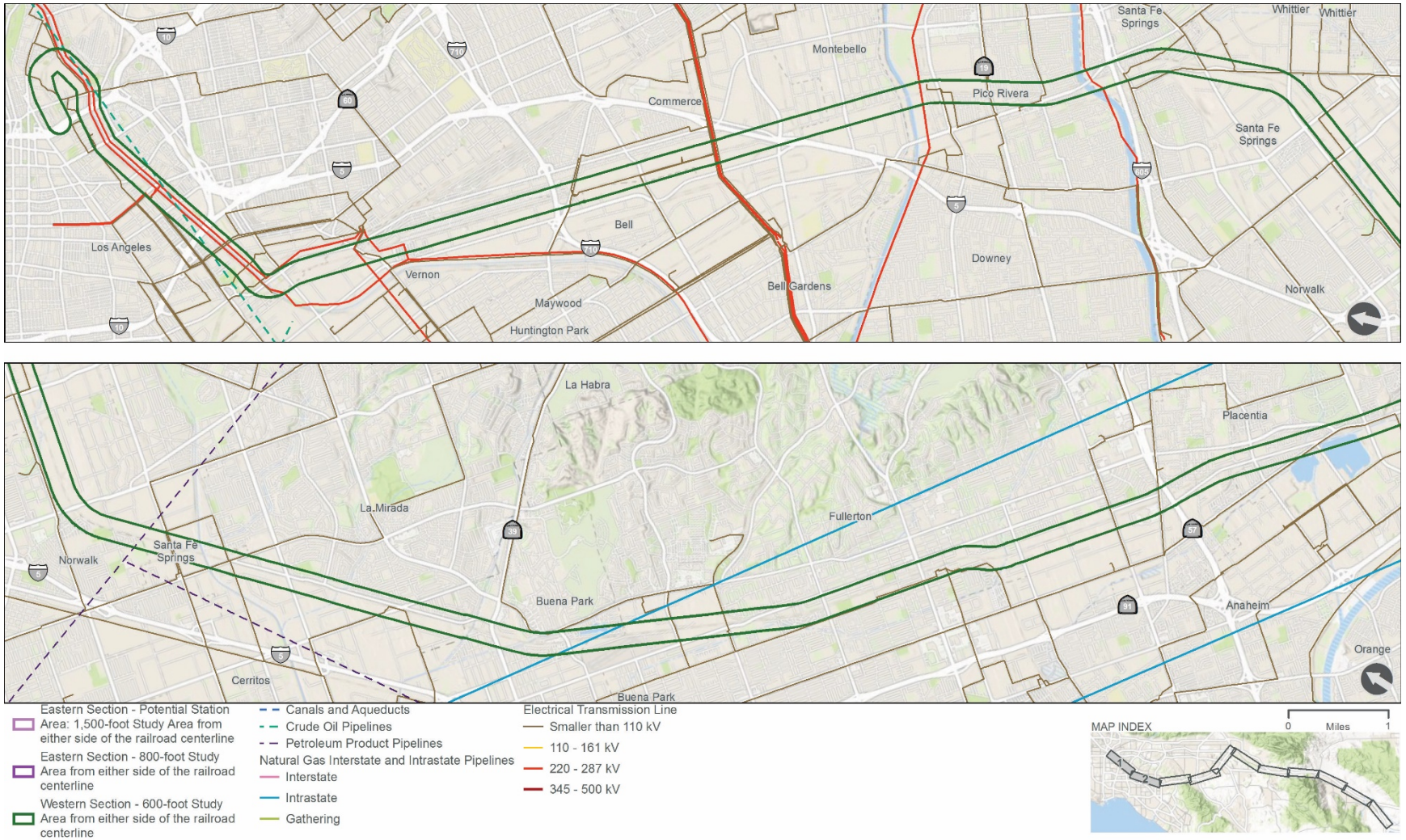
Domestic water within the Tier 1/Program EIS/EIR Study Area is provided by various sources, including municipal water departments, local water districts and water agencies, and private water companies. Imported water is primarily purchased from the Metropolitan Water District of Southern California and the State Water Project (the California Aqueduct) as a supplemental source to local water supplies. Metropolitan Water District water supplies are delivered by two principle facilities: the Colorado River Aqueduct and the California Aqueduct. Imported water is supplemented by local groundwater supplies. Metropolitan Water District, the primary water importer, supplies water to six counties (Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura). The agency membership consists of 21 entities, including 14 cities, 12 metropolitan water districts, and 1 county water authority (San Diego).

Figure 3.12-1 provides an overview of existing electrical transmission lines, natural gas pipelines, and water transmission lines in relation to the Tier 1/Program EIS/EIR Study Area.

This page is intentionally blank.

Figure 3.12-1. Known Utilities within the Tier 1/Program EIS/EIR Study Area

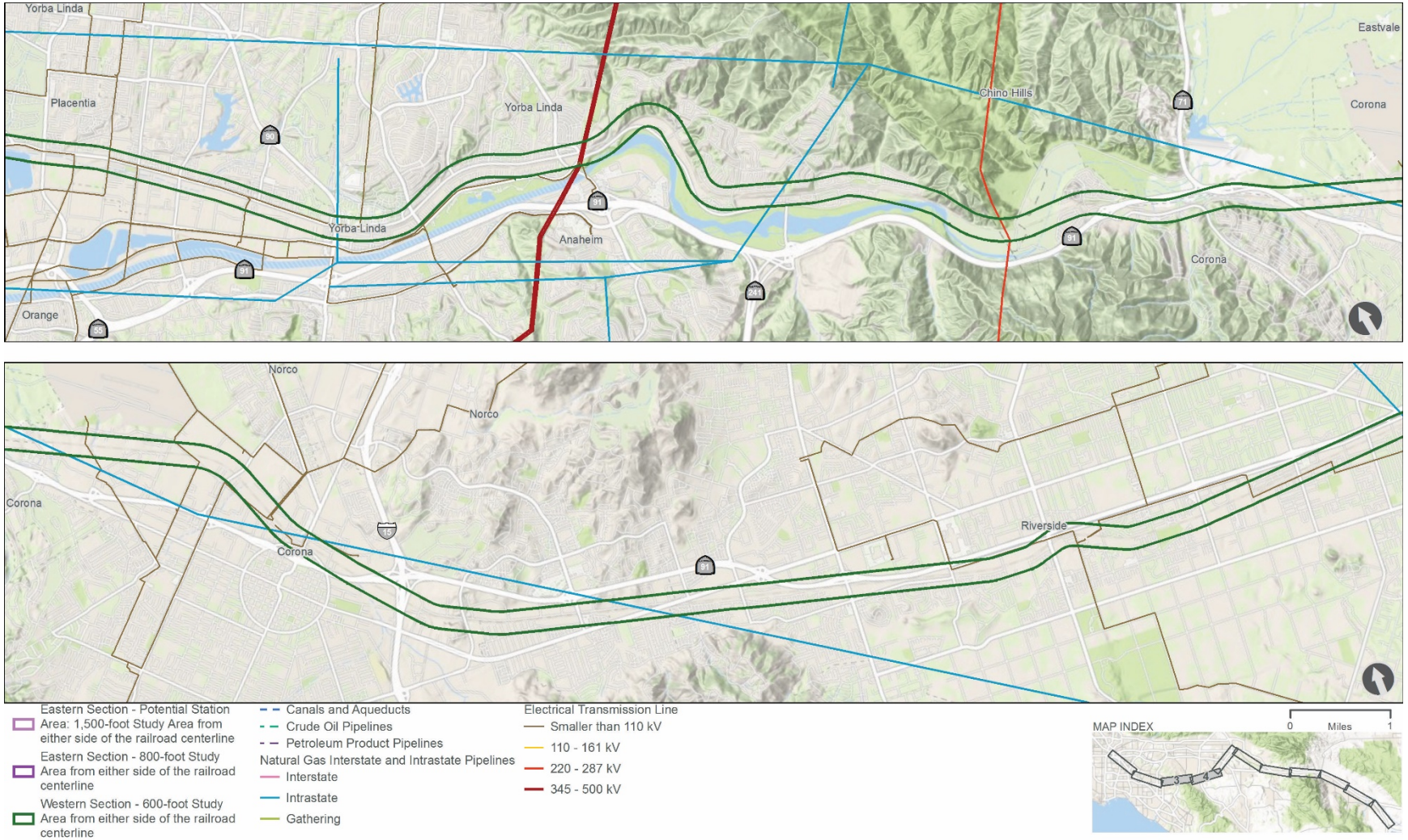
(Page 1 of 6)



This page is intentionally blank.

Figure 3.12-1. Known Utilities within the Tier 1/Program EIS/EIR Study Area

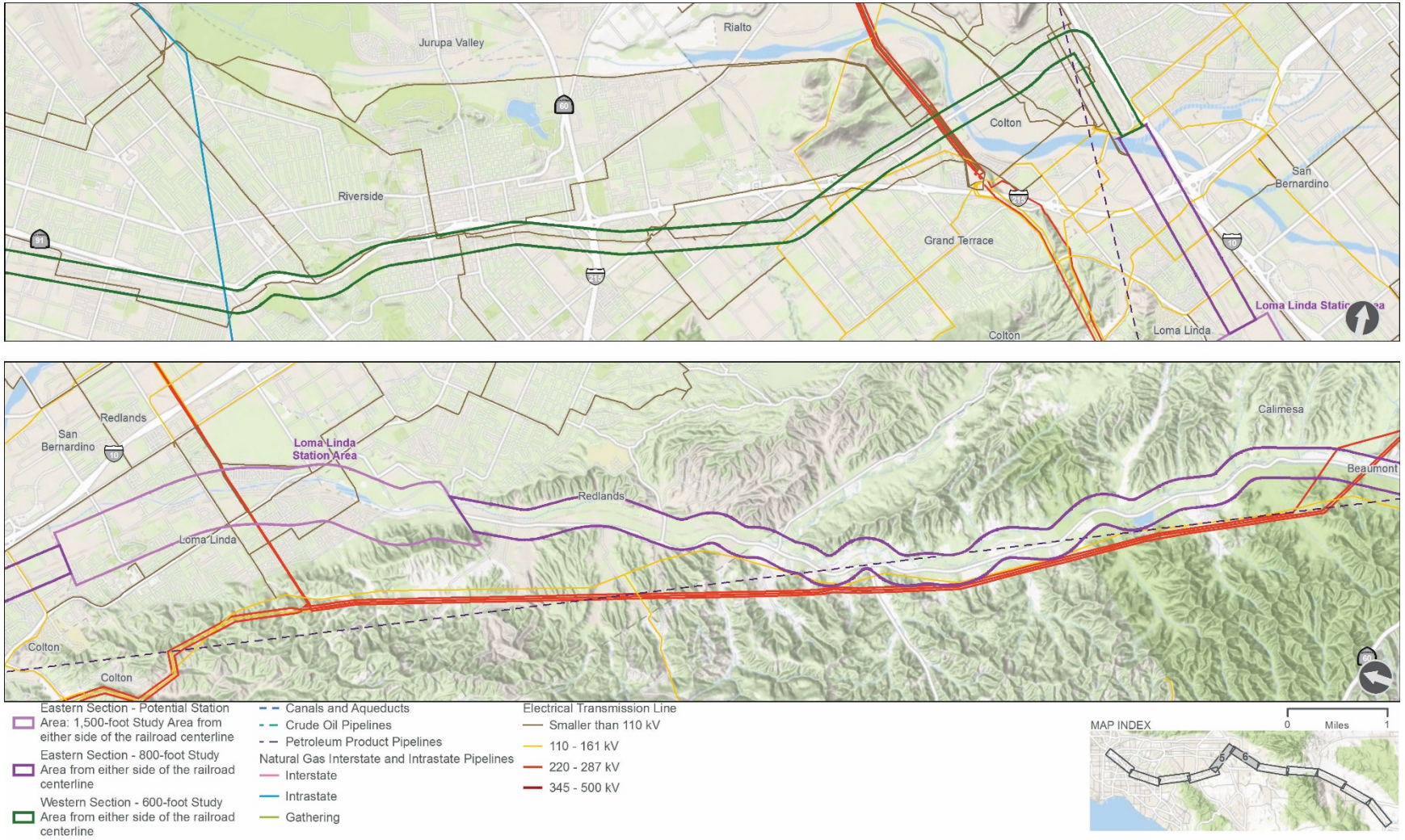
(Page 2 of 6)



This page is intentionally blank.

Figure 3.12-1. Known Utilities within the Tier 1/Program EIS/EIR Study Area

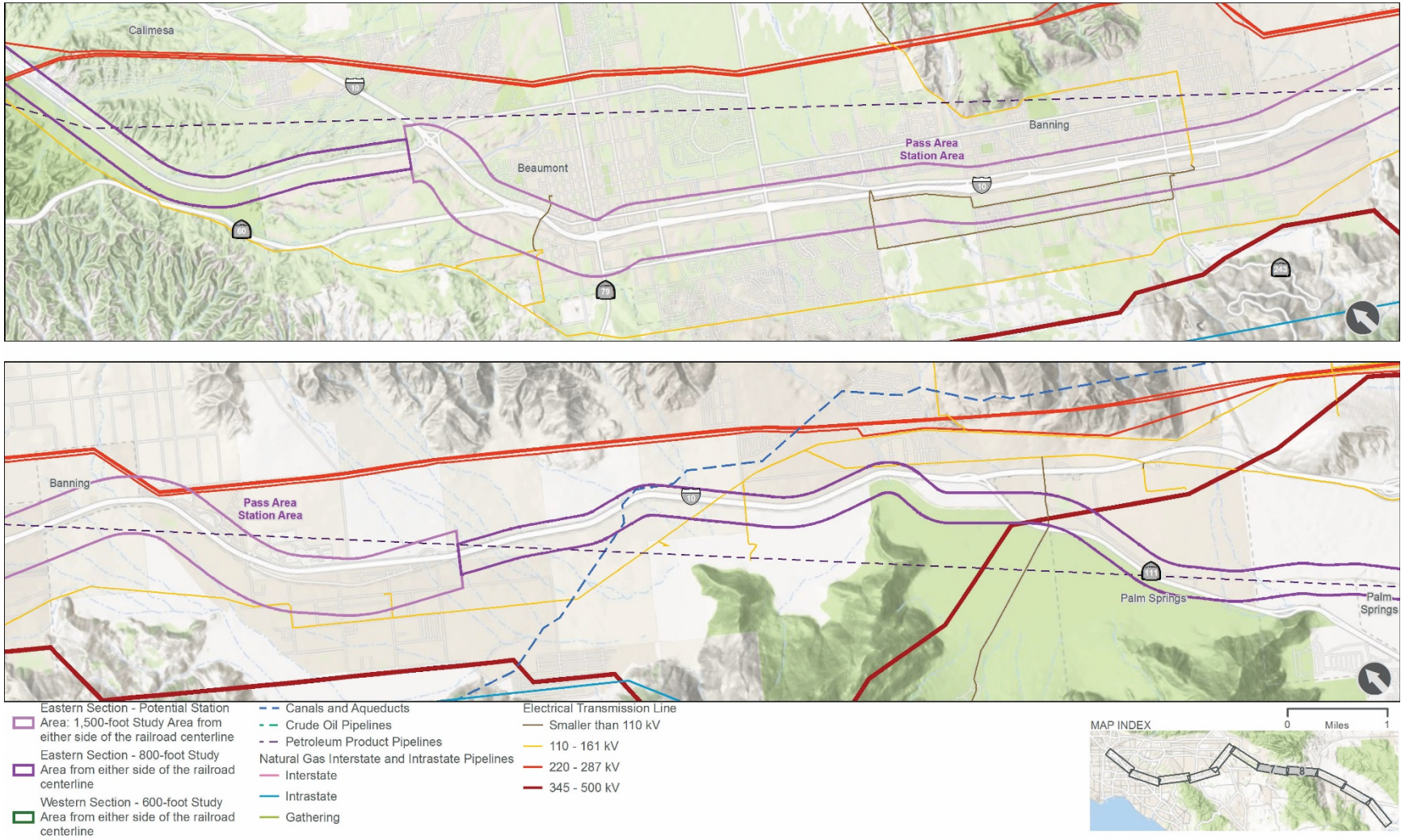
(Page 3 of 6)



This page is intentionally blank.

Figure 3.12-1. Known Utilities within the Tier 1/Program EIS/EIR Study Area

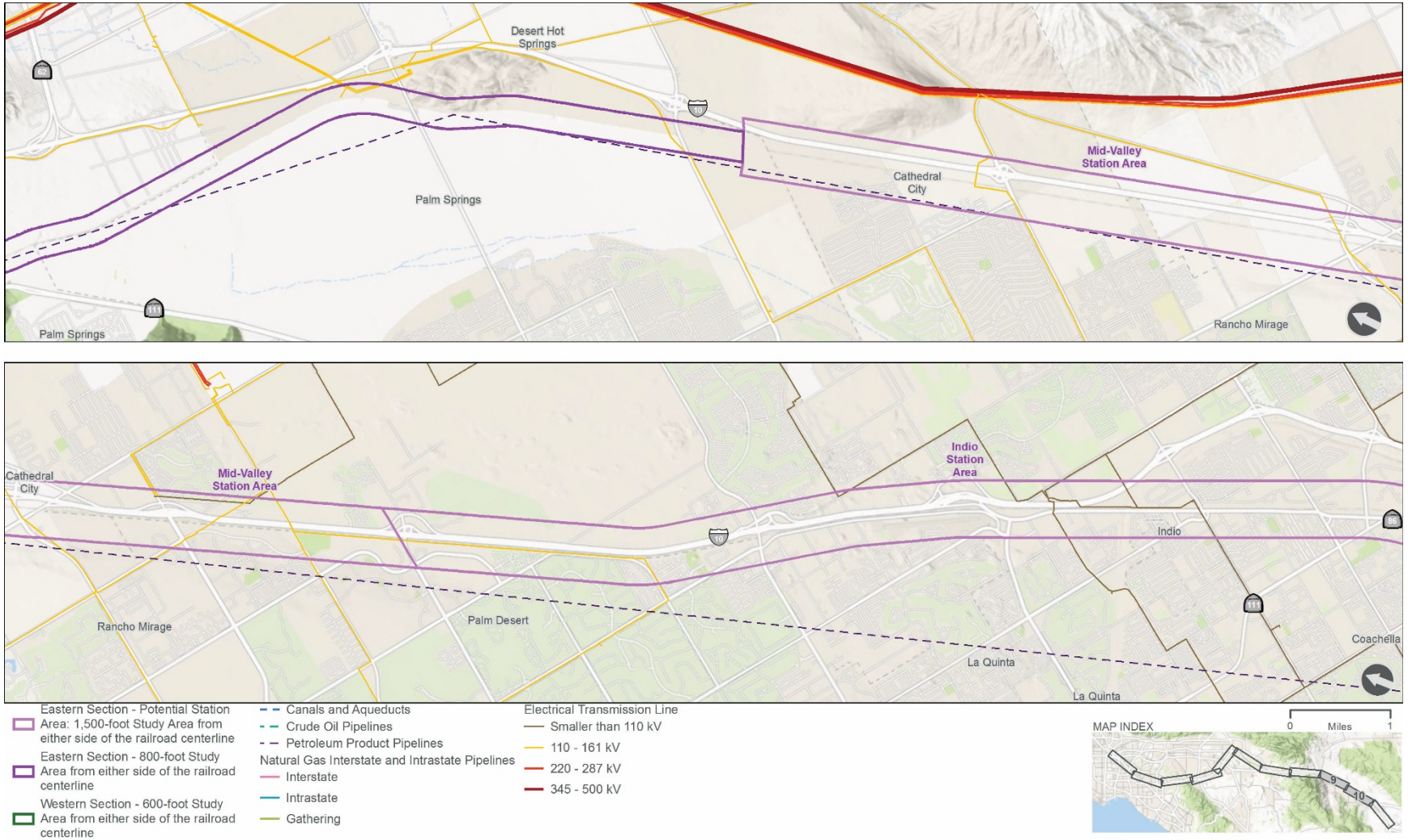
(Page 4 of 6)



This page is intentionally blank.

Figure 3.12-1. Known Utilities within the Tier 1/Program EIS/EIR Study Area

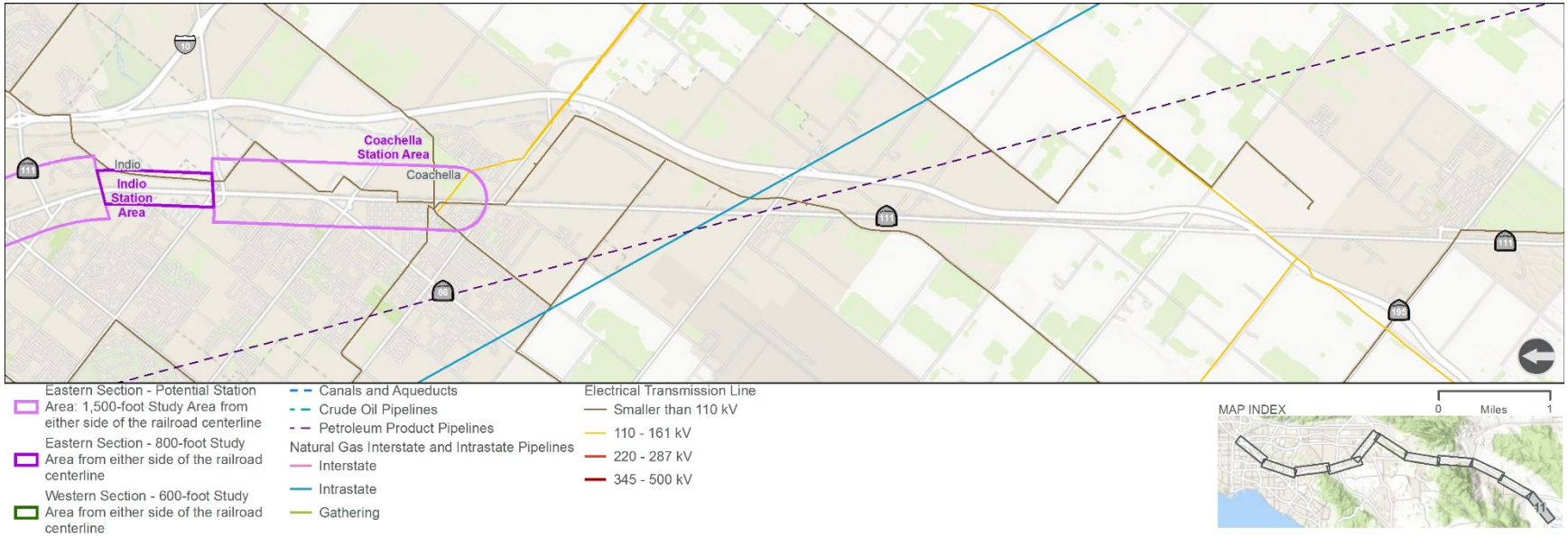
(Page 5 of 6)



This page is intentionally blank.

Figure 3.12-1. Known Utilities within the Tier 1/Program EIS/EIR Study Area

(Page 6 of 6)



This page is intentionally blank.

Build Alternative Option 1 (Coachella Terminus)

The Western Section of Build Alternative Option 1 is urbanized, resulting in a higher density of utility facilities. As summarized in Table 3.12-3, there are 116 electric transmission lines, ranging from 33 to 500 kilovolts, that cross the Western Section of Build Alternative Option 1. Six natural gas pipelines cross the Western Section of Build Alternative Option 1. There are no wastewater treatment facilities or landfills located within Build Alternative Option 1. In addition, there are three oil/petroleum product pipelines that cross the Western Section of Build Alternative Option 1.

The Eastern Section of Build Alternative Option 1 is less developed with more land devoted to agricultural uses than the Western Section. As summarized in Table 3.12-3, there are 64 electric transmission lines, ranging from 66 to 500 kilovolts, that cross the Eastern Section of Build Alternative Option 1. There are no natural gas pipelines that cross the Eastern Section of Build Alternative Option 1. In addition, there are four oil/petroleum product pipelines and one aqueduct that cross the Eastern Section of Build Alternative Option 1.

In addition, Build Alternative Option 1 crosses the San Gorgonio Pass Wind Resource Area, located at the San Gorgonio Pass. The 70 square mile San Gorgonio Pass Wind Resource Area is one of three primary regions in California dedicated to wind energy production and provides enough electricity to power Palm Springs and the entire Coachella Valley.

Table 3.12-3. Summary of Known Utility Facilities (Build Alternative Option 1)

Utility Infrastructure Facility	Number of Crossings within Western Section	Number of Crossings within Eastern Section	Total Number of Crossings
Electric transmission lines	116	64	180
Natural gas pipelines	6	0	6
Oil/petroleum product pipelines	3	4	7
Canals/aqueducts	0	1	1

Sources: CEC 2018a, 2018b

Build Alternative Option 2 (Indio Terminus)

As summarized in Table 3.12-4, the number of utility crossings within the Western Section of Build Alternative Option 2 are the same as Build Alternative Option 1. In the Eastern Section of Build Alternative Option 2, there are fewer utility crossings because of the shorter route alignment and reduced station options.

Table 3.12-4. Summary of Known Utility Facilities (Build Alternative Options 2 and 3)

Utility Infrastructure Facility	Number of Crossings within Western Section	Number of Crossings within Eastern Section	Total Number of Crossings
Electric transmission lines	116	58	174
Natural gas pipelines	6	0	6
Oil/petroleum product pipelines	3	4	7
Canals/aqueducts	0	1	1

Sources: CEC 2018a, 2018b

Build Alternative Option 3 (Indio Terminus with Limited Third Track)

Utility facilities and infrastructure within Build Alternative Option 3 are the same as Build Alternative Option 2.

Solid Waste

Counties and local jurisdictions within the Tier 1/Program EIS/EIR Study Area are responsible for their own integrated solid waste management planning, implementation, and monitoring, although waste management responsibilities may be contracted to private waste haulers. These waste collection programs usually have a collection and disposal system: typically using household trash cans and commercial dumpsters emptied into carts or trucks that deliver the solid waste to municipal landfills or sorting centers. Based on the type of waste, the waste is taken to a landfill or a recycling facility. Solid waste containing asbestos or waste determined to contain non-hazardous industrial waste may only be disposed of at landfills permitted to receive this type of waste.

Build Alternative Option 1 (Coachella Terminus)

Table 3.12-5 provides a summary of landfill facilities that serve the Tier 1/Program EIS/EIR Study Area.

Table 3.12-5. Summary of Landfill Facilities (Build Alternative Options 1, 2, and 3)

County	Landfill Facility	Waste Types Accepted	Remaining Capacity (Tons)	Maximum Permitted Capacity (Tons)
Los Angeles	Scholl Canyon Landfill	Tires, manure, mixed municipal, industrial, construction/demolition, and inert material	13,860,000	82,460,000
Los Angeles	Burbank Landfill Site Number 3	Inert, industrial, construction/demolition, and mixed municipal	7,244,107	8,306,711
Los Angeles	Lancaster Landfill and Recycling Center	Contaminated soil, sludge (biosolids), asbestos, green materials, inert material, tires, mixed municipal, industrial, construction/demolition, and agricultural	20,320,507	38,780,000
Los Angeles	Calabasas Landfill	Green materials, tires, mixed municipal, industrial, and construction/demolition	20,300,000	90,020,000
Los Angeles	Chiquita Canyon Sanitary Landfill	Inert, industrial, construction/demolition, green materials, and mixed municipal	84,571,200	154,512,400
Los Angeles	Pebbly Beach (Avalon) Disposal Site	Metals, inert, green materials, sludge (biosolids), mixed municipal, and ash	91,728	200,399
Los Angeles	San Clemente Island Landfill	Inert, construction/demolition, mixed municipal, and industrial	293,742	329,642
Los Angeles	Antelope Valley Public Landfill	Mixed municipal, inert, industrial, green materials, contaminated soil, construction/demolition, asbestos, and agricultural	25,075,715	42,280,000
Los Angeles	Savage Canyon Landfill	Inert, green materials, industrial, construction/demolition, and mixed municipal	13,315,166	27,072,430

County	Landfill Facility	Waste Types Accepted	Remaining Capacity (Tons)	Maximum Permitted Capacity (Tons)
Orange	Prima Dechecha Landfill	Wood waste, sludge (biosolids), mixed municipal, industrial, and construction/demolition	134,300,000	172,100,000
Orange	Olinda Alpha Landfill	Wood waste, tires, mixed municipal, construction/demolition, industrial, and agricultural	34,200,000	148,800,000
Orange	Frank R. Bowerman Sanitary Landfill	Construction/demolition, industrial, and mixed municipal	205,000,000	266,000,000
San Bernardino	California Street Landfill	Sludge (biosolids), other designated, mixed municipal, and construction/demolition	7,235,455	15,960,000
San Bernardino	Victorville Sanitary Landfill	Wood waste, tires, sludge (biosolids), mixed municipal, industrial, green materials, dead animals, construction/demolition, ash, and agricultural	114,114,000	116,480,000
San Bernardino	Barstow Sanitary Landfill	Sludge (biosolids), other designated, mixed municipal, industrial, construction/demolition, and agricultural	100,074,324	112,496,300
San Bernardino	Mid-Valley Sanitary Landfill	Wood waste, tires, mixed municipal, industrial, inert, green materials, dead animals, contaminated soil, construction/demolition, ash, and agricultural	85,707,128	141,820,000
San Bernardino	Landers Sanitary Landfill	Tires, sludge (biosolids), other designated, mixed municipal, industrial, and construction/demolition	15,607,340	19,576,900
San Bernardino	United States Marine Corps – 29 Palms Disposal Facility	Tires, sludge (biosolids), mixed municipal, inert, industrial, dead animals, agricultural, and construction/demolition	10,579,800	15,232,000
San Bernardino	Fort Irwin Sanitary Landfill	Sludge (biosolids), mixed municipal, dead animals, and contaminated soil	26,509,283	26,600,000

County	Landfill Facility	Waste Types Accepted	Remaining Capacity (Tons)	Maximum Permitted Capacity (Tons)
San Bernardino	Mitsubishi Cement Plant Cushenbury Landfill	Industrial	302,400	728,560
San Bernardino	San Timoteo Sanitary Landfill	Sludge (biosolids), mixed municipal, inert, industrial, dead animals, agricultural, and construction/demolition	17,304,554	31,760,099
Riverside	Badlands Sanitary Landfill	Wood waste, tires, sludge (biosolids), mixed municipal, metals, liquid waste, industrial, inert, green materials, dead animals, contaminated soil, construction/demolition, ash, asbestos, and agricultural	22,048,319	48,160,000
Riverside	Lamb Canyon Sanitary Landfill	Tires, sludge (biosolids), mixed municipal, metals, liquid waste, industrial, inert, green materials, dead animals, contaminated soil, construction/demolition, ash, asbestos, and agricultural	26,940,130	54,509,914
Riverside	Oasis Sanitary Landfill	Wood waste, mixed municipal, metals, inert, green materials, construction/demolition, and agricultural	607,291	1,536,013
Riverside	Desert Center Sanitary Landfill	Wood waste, tires, mixed municipal, metals, inert, green materials, dead animals, contaminated soil, construction/demolition, asbestos, and agricultural	178,397	572,757
Riverside	Blythe Sanitary Landfill	Wood waste, tires, mixed municipal, metals, liquid waste, inert, industrial, green materials, dead animals, contaminated soil, construction/demolition, and agricultural	5,368,258	8,721,538
Riverside	El Sobrante Landfill	Tires, mixed municipal, contaminated soil, and construction/demolition	201,568,038	293,874,000

Source: California Department of Resources Recycling and Recovery 2020b

Build Alternative Option 2 (Indio Terminus)

Waste management facilities that would serve the area within Build Alternative Option 2 are the same as Build Alternative Option 1.

Build Alternative Option 3 (Indio Terminus with Limited Third Track)

Waste management facilities that would serve the area within Build Alternative Option 2 are the same as Build Alternative Option 1.

Energy

Energy can be measured in two ways: direct energy, which would be the energy used to maintain and operate the Program, and indirect energy, which would be used during construction activities. Primary energy sources take many forms, including nuclear energy, fossil energy (e.g., coal, oil, and natural gas), and renewable resources (e.g., wind, solar, and hydropower). These primary sources are turned into secondary sources, such as electricity. The major primary energy sources consumed in the U.S. are petroleum (oil), natural gas, coal, nuclear energy, and renewable energy.

For transportation projects, energy usage is predominantly influenced by the amount of fuel used. BTU is a measure of the heat content of fuels or energy sources, with the average BTU content of fuel being the heat value (or energy content) per volume of fuel, as determined from tests of fuel samples. A gallon of gasoline produces approximately 120,286 BTU (U.S. EIA 2021).

The U.S. EIA reported that the U.S. used approximately 20 percent of worldwide oil consumption in 2017. Petroleum products (gasoline, diesel, and jet fuel) make up 92 percent of the U.S. usage of crude oil. Within the U.S. oil consumption, 27 percent was used for transportation in 2017. Over half of that energy usage was devoted to highway travel with cars and light trucks (U.S. EIA 2021).

According to the U.S. EIA, California has the second highest total energy demand in the country but is also one of the states with the lowest per capita total energy consumption. California ranks 48 out of 51 states (including the District of Columbia) in 2019 per capita energy consumption largely due to the state's mild climate and energy efficiency efforts. The state is also a leader in total renewable energy production (after Washington state), ranking first in the nation in generation of solar, geothermal, and biomass energy. Additionally, California produces conventional hydroelectric power (the fourth-largest producer in the nation) and wind energy (fifth largest producer in the nation) (U.S. EIA 2018a).

The transportation end-use sector accounts for the largest share of energy consumption in California. In 2016, transportation accounted for 49 percent of all energy consumed in California, compared with 24.5 percent for industrial uses, 12.5 percent for commercial uses, and 14 percent for residential uses (U.S. EIA 2018b).

Table 3.12-6 presents a comparison of travel modes in the U.S., including the vehicle miles, passenger miles, and energy intensities of those travel modes. In 2015, commuter rail used less energy per passenger mile than cars, personal trucks, motorcycles, air, and transit buses. Thus, among the travel modes in the U.S., commuter rail is more energy efficient on a per-passenger mile basis than most other transportation modes.

Table 3.12-6. 2015 United States Passenger Travel Mode and Energy Use

Travel Mode	Vehicle-Miles (millions)	Passenger-Miles (millions)	Energy Consumption BTU per Vehicle-Mile	Energy Consumption BTU per Passenger-Mile
Cars	1,445,400	2,240,370	4,702	3,034
Personal trucks	1,123,226	2,066,736	6,156	3,345
Motorcycles	19,606	22,743	2,855	2,462
Air	5,589	632,648	263,971	2,332
Buses (transit)	2,216	20,239	36,760	4,025
Rail (transit)	803	20,710	20,022	776
Rail (commuter)	374	11,804	51,888	1,643
Rail (intercity-Amtrak)	319	6,536	34,034	1,663

Source: Davis et al. 2018

Notes:

BTU=British thermal unit

Build Alternative Option 1 (Coachella Terminus)

Energy production typically varies by season and by year depending on hydrologic conditions. Regional electricity loads tend to be higher in the summer because the higher summer temperatures drive increased demand for air-conditioning. In 2019, Los Angeles Department of Water and Power's energy resources consisted of 45 percent from eligible renewable sources (i.e., biomass and biowaste, geothermal, eligible hydroelectric, solar, and wind), 17 percent from coal, 2 percent from

large hydroelectric, 32 percent from natural gas, and the remaining percentage from unspecified power (CEC 2019a). In 2018, Southern California Edison's energy resources consisted of 36 percent from eligible renewable sources (including 1 percent from large hydroelectric), 17 percent from natural gas, 6 percent from nuclear, and 37 percent from unspecified power[1] (CEC 2019b). Imperial Irrigation District's energy resources consisted of 29 percent from eligible renewable sources, 4 percent from large hydroelectric, 27 percent from natural gas, 3 percent from nuclear, and 37 percent from unspecified power (CEC 2019c).

Build Alternative Option 2 (Indio Terminus)

Existing energy production and resources within Build Alternative Option 2 are the same as Build Alternative Option 1.

Build Alternative Option 3 (Indio Terminus with Limited Third Track)

Existing energy production and resources within Build Alternative Option 3 are the same as Build Alternative Option 1.

3.12.5 Environmental Consequences

Overview

Effects as a result of implementing the Build Alternative Options can be broadly classified into construction and operational effects. Long-term or permanent effects and short-term or temporary effects on public utilities and energy would be anticipated as a result of constructing any of the Build Alternative Options. Most effects on public utilities would occur during construction when the ground is disturbed and when there could be utility conflicts to overhead and underground utilities, including utility relocations to accommodate the proposed infrastructure or service disruptions (both planned and unanticipated) as a result of construction activities. Most of the energy consumption associated with the Build Alternative Options would occur over the operational lifetime of the Program.

No Build Alternative

The No Build Alternative, as described in Chapter 2, Program Alternatives, is used as the baseline for comparison. The No Build Alternative would not implement the Program associated with this service-level evaluation. Because no physical changes would occur, no effects related to public utilities or solid waste facilities are anticipated under the No Build Alternative.

[1] Unspecified sources of power means electricity from transactions that are not traceable to specific generation sources.

Under the No Build Alternative, no passenger rail system would be built, and no changes in effects on energy use would occur beyond those that could occur due to other reasonably foreseeable projects, such as ongoing operation and maintenance. Under the No Build Alternative, passenger train service would not be available to the public between Coachella Valley and Los Angeles, resulting in the continued reliance on automobiles, buses, and planes for transportation between communities in the Program Corridor. With the continued trend in substantial increases in VMT within the Tier 1/Program EIS/EIR Study Area, energy consumption and GHG emissions would be likely to increase steadily under the No Build Alternative. This assessment does not take into account other influences, including changes in Corporate Average Fuel Economy standards, bus and aircraft efficiency, fuel compositions, and other factors.

In addition, an increase in traffic and VMT is expected with the No Build Alternative because more cars would be on the roadways compared with what would occur with implementation of the Program. Therefore, traffic congestion is likely to worsen with the No Build Alternative, resulting in the continued trend in substantial increases in VMT within the Tier 1/Program EIS/EIR Study Area and energy consumption in the form of fuel under the No Build Alternative. Detailed VMT calculations for the Program are further discussed in Section 3.3, Transportation, of this Tier 1/Program EIS/EIR.

Build Alternative Options 1, 2, and 3

Public Utilities Effects

CONSTRUCTION

Western Section. No construction activities would be required to implement any of the Build Alternative Options within the Western Section of the Program Corridor because the existing railroad ROW and stations from LAUS to Colton would be used. The Build Alternative Options would not require construction of new stations, new track or extensions to existing track, or the addition of sidings, wayside signals, drainage, or at-grade separations within the Western Section of the Program Corridor. When compared with the No Build Alternative, effects on public utilities would be negligible within the Western Section under Build Alternatives Options 1, 2, and 3.

Eastern Section. Activities associated with the construction of rail infrastructure improvements and station facilities are not anticipated to result in new substantial discharges of wastewater. During construction activities, the construction contractor would provide portable toilets on site, which would then be removed from the site on a regular basis for servicing off site at an approved wastewater handling facility. Therefore, construction activities are unlikely to produce a substantial increase in

wastewater generation, and there would be minimal effects on wastewater treatment requirements, capacity, and facilities.

Although construction activities would require water during site preparation, building preparation, material preparation, and for dust suppression, it is anticipated that construction would not directly use groundwater supplies for these activities. Sufficient water supplies are anticipated to be available during construction of Tier 2/Project-level improvements, either through local sources or by trucking in water for construction. The Tier 2/Project-level analysis would identify and evaluate effects on specific water supplies once site-specific projects are known.

For utility relocations, potential construction impacts are dependent on the location of rail infrastructure improvements and station facilities, which are currently unknown. As shown on Figure 3.12-1, there are multiple known utilities within and adjacent to existing ROW and construction of new stations or rail infrastructure improvements may require relocation of these utilities. The Tier 2/Project-level analysis would identify and mitigate impacts associated with the relocation of utility facilities once station locations and site-specific rail infrastructure improvements are known.

When compared with the No Build Alternative, Build Alternative Option 1 could have a moderate effect associated with public utilities within the Eastern Section of the Program Corridor. Although Build Alternative Options 2 and 3 would not include the Coachella Station Area and non-station between the Indio and Coachella Station Areas, there is still the potential for utility relocations to be required during construction of rail infrastructure improvements and station facilities. When compared with Build Alternative Option 1, Build Alternative Option 2 would have the same magnitude of effects on public utilities and be considered moderate when compared with the No Build Alternative. When compared with Build Alternative Options 1 or 2, Build Alternative Option 3 may have slightly reduced effects due to a smaller footprint associated with a shorter route alignment, reduced station options, and reduced third track rail infrastructure. However, the magnitude of effects would be similar for Build Alternative Option 3 and considered moderate when compared with the No Build Alternative.

OPERATION

Western Section. Under Build Alternative Options 1, 2, and 3, passenger train frequencies proposed as part of the Program would consist of the addition of two daily, round-trip intercity diesel-powered passenger trains operating the entire length of the Program Corridor between Los Angeles and Coachella. Once construction is completed, it is anticipated that effects on utilities would not occur during operations as the utilities would be in fixed locations operating independently of the Program. Effects associated with the Western Section of the Program Corridor under Build Alternative Options

1, 2, and 3 would be negligible when compared with the No Build Alternative, as existing tracks would be used, and maintenance activities would be conducted within existing ROW.

Eastern Section. New rail infrastructure improvements are not anticipated to require the use of groundwater supplies during operation or maintenance activities. However, depending on the location and type of amenities identified for new station facilities, there is the potential that groundwater supplies may be needed during operation. The Tier 2/Project-level analysis would identify and evaluate the potential of site-specific Project impacts on water supplies. Similarly, new rail infrastructure improvements are not anticipated to generate substantial amounts of wastewater during operation or maintenance activities. However, new station or maintenance facilities would result in a new source of wastewater that would need to be treated by the local wastewater treatment facility. The Tier 2/Project-level analysis would identify and evaluate the potential of site-specific Project effects associated with wastewater treatment capacity demands. Ongoing operations are not expected to require the relocation or construction of new utilities as those impacts would occur during the construction of rail infrastructure improvements or station facilities.

When compared with the No Build Alternative, Build Alternative Option 1 could have a moderate effect associated with public utilities within the Eastern Section of the Program Corridor. Although Build Alternative Options 2 and 3 would not include the Coachella Station Area and non-station between the Indio and Coachella Station Areas, Build Alternative Options 2 and 3 would still generate additional wastewater that would need to be treated and require water for station operation within the other station areas in the Eastern Section. When compared with Build Alternative Option 1, Build Alternative Option 2 would have the same magnitude of effects on public utilities and be considered moderate when compared with the No Build Alternative. When compared with Build Alternative Options 1 or 2, Build Alternative Option 3 may have slightly reduced effects due to a smaller footprint associated with a shorter route alignment, reduced station options, and reduced third track rail infrastructure. However, the magnitude of effects would be similar for Build Alternative Option 3 and considered moderate when compared with the No Build Alternative.

Solid Waste Effects

CONSTRUCTION

Western Section. No construction activities would be required to implement the Build Alternative Options within the Western Section because the existing railroad ROW and station areas from LAUS to Colton would be utilized. The Build Alternative Options would not require construction of new stations, new track or extensions to existing track, or the addition of sidings, wayside signals, drainage, or at-grade separations within the Western Section of the Program Corridor. As such, no

construction-related effects on solid waste facilities would be anticipated in the Western Section under Build Alternative Options 1, 2, and 3 when compared with the No Build Alternative.

Eastern Section. Solid waste created during construction and demolition activities typically consists of asphalt, concrete, and metal rebar associated with roadway removal, culvert removal, and bridge renovations. The landfills that would receive the construction and demolition material from the various improvements envisioned under the Program have not been identified. Each landfill has specific permit requirements regarding the acceptance of wastes and construction and demolition material and quantities of waste accepted each day that may influence the selection of disposal sites.

Although construction activities under any of the Build Alternative Options could increase the generation of solid waste, appropriate construction waste disposal and recycling methods per the local jurisdiction's goals and regulations would be used to minimize the amount of solid waste that would be transported to a solid waste facility.

When compared with the No Build Alternative, Build Alternative Option 1 could have a negligible effect on solid waste facilities within the Eastern Section of the Program Corridor. When compared with Build Alternative Option 1, Build Alternative Option 2 would have slightly reduced effects due to a shorter route alignment and reduced station options. However, the magnitude of effects would be similar and considered negligible when compared with the No Build Alternative. When compared with Build Alternative Options 1 or 2, Build Alternative Option 3 may have slightly reduced effects due to a smaller footprint associated with a shorter route alignment, reduced station options, and reduced third track rail infrastructure. However, the magnitude of effects would be similar for Build Alternative Option 3 and considered negligible when compared with the No Build Alternative.

OPERATION

Western Section. The additional train trips envisioned under Build Alternative Options 1, 2, and 3 would travel within an existing railroad ROW and would not affect solid waste facilities when compared with the No Build Alternative. Operation of all Build Alternative Options within the Western Section would not result in increased generation of solid waste or require new or additional solid waste facilities when compared with the No Build Alternative.

Eastern Section. The operation of new station facilities and maintenance of new rail infrastructure improvements would generate solid waste from passenger refuse disposal and materials used from maintenance activities. However, it is anticipated that these types of activities would generate small amounts of waste, and effects would be negligible on existing solid waste facilities that would service the Tier 1/Program EIS/EIR Study Area when compared with the No Build Alternative. Although the quantity of solid waste generated cannot be determined for this Tier 1/Program EIS/EIR, there are

15 landfills that service the Eastern Section of the Program Corridor with ample remaining capacity to serve the Program.

When compared with the No Build Alternative, Build Alternative Option 1 could have a negligible effect on solid waste facilities within the Eastern Section of the Program Corridor. When compared with Build Alternative Option 1, Build Alternative Option 2 would have slightly reduced effects due to a shorter route alignment and reduced station options. However, the magnitude of effects would be similar and considered negligible when compared with the No Build Alternative. When compared with Build Alternative Options 1 or 2, Build Alternative Option 3 may have slightly reduced effects due to a smaller footprint associated with a shorter route alignment, reduced station options, and reduced third track rail infrastructure. However, the magnitude of effects would be similar for Build Alternative Option 3 and considered negligible when compared with the No Build Alternative.

Energy Effects

CONSTRUCTION

Western Section. No construction activities would be required to implement any of the Build Alternative Options within the Western Section of the Program Corridor because the existing railroad ROW and stations from LAUS to Colton would be used. The Build Alternative Options would not require construction of new stations, new track or extensions to existing track, or the addition of sidings, wayside signals, drainage, or at-grade separations within the Western Section of the Program Corridor. When compared with the No Build Alternative, effects associated with energy usage or consumption would be negligible within the Western Section under Build Alternatives Options 1, 2, and 3.

Eastern Section. Construction activities required for infrastructure improvements (e.g., sidings, additional main line track, wayside signals, drainage, grade-separation structures, and stations) would consume gasoline and diesel fuel through operation of heavy-duty, off-road construction equipment and on-road vehicles. The amount of fuel consumed would vary depending on the length of the construction period, specific construction activity (e.g., grading, bridge, and construction), types of equipment, and number of personnel.

Design specifics and locations of the rail infrastructure improvements and station facilities are not known at this time, so the energy that may need to be consumed during specific construction activities cannot be quantified at the Tier 1/Program-level evaluation. Once detailed construction information for the site-specific rail infrastructure improvement or station facility is available, a quantitative estimate of the total energy consumption during construction would be conducted and evaluated during the Tier 2/Project-level analysis.

In the absence of a quantitative energy analysis, the effects of construction under any of the Build Alternative Options are not anticipated to be substantial with respect to energy consumption. As discussed below, the operational effect of any of the Build Alternative Options would be a net energy savings relative to the No Build Alternative on an annual basis. To achieve those energy savings, construction activity is needed to build the Program and allow drivers of on-road personal vehicles to shift to rail transportation. Because construction would involve typical activities for the purpose of building a more efficient, energy-saving transportation mode, fuel and other energy consumed during construction would not be considered wasteful, inefficient, or unnecessary.

Implementation of BMPs to mitigate potential air quality and/or GHG effects, as described in Section 3.5, Air Quality and Greenhouse Gases, would also reduce fuel consumption during construction activities, further preventing any wasteful, inefficient, and unnecessary usage of energy.

When compared with the No Build Alternative, Build Alternative Option 1 could have a moderate effect on energy resources during construction activities. When compared with Build Alternative Option 1, Build Alternative Option 2 would have slightly reduced effects due to a shorter route alignment and reduced station options (e.g., less rail infrastructure and less station facilities that could be constructed). However, the magnitude of effects would be similar and considered moderate when compared with the No Build Alternative. When compared with Build Alternative Options 1 or 2, Build Alternative Option 3 may have slightly reduced effects due to a smaller footprint associated with a shorter route alignment, reduced station options, and reduced third track rail infrastructure. However, the magnitude of effects would be similar for Build Alternative Option 3 and considered moderate when compared with the No Build Alternative.

OPERATION

Western and Eastern Section. Implementation of any of the Build Alternative Options is expected to increase transit ridership within the Program Corridor, which would result in reduced VMT. Because the Western and Eastern Sections would not undergo train operations in isolation without the adjacent section, the entire length of the Program Corridor must be evaluated to comprehensively assess the Program's energy effects. Under the Program, the range of estimated reductions in VMT is between 43,835 and 57,534 miles per day in Opening Year 2024 and 73,972 and 95,890 miles per day in Horizon Year 2044. Reductions in VMT would be realized through a shift in travel models within the Program Corridor attributable to a reduction in fuel consumption by passenger vehicles. Although the amount of VMT on roadways generated in the Tier 1/Program EIS/EIR Study Area would be reduced, the passenger rail system would also require fuel, and hence energy consumption, which would offset some of the VMT reduction effect. The energy consumption associated with decreased on-road travel and operation of the passenger rail system under each of the Build Alternative Options is summarized in Table 3.12-7 and Table 3.12-8.

Table 3.12-7. Net Operational Energy Effects (Build Alternative Option 1)

Source	Annual Energy Consumption in 2024 (MMBTU)	Annual Energy Consumption in 2044 (MMBTU)
Total on-road vehicles[a]	77,291–100,469	98,191–127,635
Gasoline vehicles[b]	76,791–99,819	97,382–126,585
Diesel vehicles[c]	500–650	808–1,051
Proposed passenger rail[d]	10,909	10,909
Energy savings (1. – 2.)	66,382–89,560	87,282–116,726

Notes:

[a] Based on fuel and mileage data from California ARB's EMFAC2017 vehicle emissions database and the VMT reductions in Table 3.12-1. Energy consumed by electric vehicles is not accounted for in EMFAC2017 and is thus excluded from this energy analysis.

[b] Light-duty fuel efficiency for gasoline vehicles is 31 miles per gallon (in 2024) and 40 miles per gallon (in 2044), as calculated with EMFAC2017 for the SCAG region. 99 percent of light-duty vehicles and motorcycle mileage is with gasoline vehicles. The energy content of 1 gallon of gasoline fuel is 120,476 BTU (U.S. EIA 2017).

[c] Light-duty fuel efficiency for diesel vehicles is 48 miles per gallon (in 2024) and 59 miles per gallon (in 2044). 1 percent of light-duty vehicles and motorcycle mileage is with diesel vehicles. The energy content of 1 gallon of gasoline fuel is 137,452 BTU (U.S. EIA 2017).

[d] Based on a total daily travel distance of 576 miles/day (144-mile corridor * 2 round trips/day) and the energy use per vehicle mile for commuter rail.

MMBTU=million British thermal unit; SCAG=Southern California Association of Governments; VMT=vehicle miles traveled

Table 3.12-8. Net Operational Energy Effects (Build Alternative Options 2 and 3)

Source	Annual Energy Consumption in 2024 (MMBTU)	Annual Energy Consumption in 2044 (MMBTU)
Total on-road vehicles[a]	77,291–100,469	98,191–127,635
Gasoline vehicles[b]	76,791–99,819	97,382–126,585
Diesel vehicles[c]	500–650	808–1,051
Proposed passenger rail[d]	10,625	10,625

Source	Annual Energy Consumption in 2024 (MMBTU)	Annual Energy Consumption in 2044 (MMBTU)
Energy savings (1. – 2.)	66,666–89,844	87,566–117,010

Notes:

[a] Based on fuel and mileage data from California ARB's EMFAC2017 vehicle emissions database and the VMT reductions in Table 3.12-1. Energy consumed by electric vehicles is not accounted for in EMFAC2017 and is thus excluded from this energy analysis.

[b] Light-duty fuel efficiency for gasoline vehicles is 31 miles per gallon (in 2024) and 40 miles per gallon (in 2044), as calculated with EMFAC2017 for the SCAG region. 99 percent of light-duty vehicles and motorcycle mileage is with gasoline vehicles. The energy content of 1 gallon of gasoline fuel is 120,476 BTU (U.S. EIA 2017).

[c] Light-duty fuel efficiency for diesel vehicles is 48 miles per gallon (in 2024) and 59 miles per gallon (in 2044). 1 percent of light duty vehicles and motorcycle mileage is with diesel vehicles. The energy content of 1 gallon of gasoline fuel is 137,452 BTU (U.S. EIA 2017).

[d] Based on a total daily travel distance of 561 miles/day (140.25-mile corridor * 2 round trips/day) and the energy use per vehicle mile for commuter rail.

MMBTU=million British thermal unit; SCAG=Southern California Association of Governments; VMT=vehicle miles traveled

As summarized in Table 3.12-7, Build Alternative Option 1 is expected to result in energy savings ranging from 66,382 to 89,560 million British thermal units (MMBTU) in 2024 and 87,282 to 116,726 MMBTU in 2044. As summarized in Table 3.12-8, Build Alternative Options 2 and 3 are expected to result in energy savings ranging from 66,666 to 89,844 MMBTU in 2024 and 87,566 to 117,010 MMBTU in 2044. However, these energy savings do not account for the energy consumed by existing stations and maintenance activities that may occur in the Western Section. For operation in the Eastern Section, additional energy consumption is anticipated for operation of the new station and maintenance facilities and supporting infrastructure.

For these reasons, energy savings would be lower than depicted in Table 3.12-7 and Table 3.12-8 because quantifying energy consumption for stations and maintenance activities is not possible at the Tier 1/Program-level evaluation. Conversely, the energy estimates for the passenger rail system assume an energy consumption value per vehicle mile for commuter rail for 2015. Modes of transportation (including commuter rail) would likely become more energy efficient in 2024 and much more energy efficient in 2044. As such, the rail energy estimates for train propulsion would likely be lower, resulting in an increasing effect on energy savings.

Overall, the Build Alternative Options are expected to result in energy savings relative to the No Build Alternative because the primary source of energy consumption for the Program (i.e., train propulsion) is more efficient than personal single occupancy vehicles. In the Western Section, existing infrastructure and stations would be utilized, so energy savings would be greatest in this

section. In the Eastern Section of the Program Corridor, new rail infrastructure improvements and station facilities would be constructed and operated, resulting in additional increases in energy consumption. As such, energy consumption in the Eastern Section would be higher than in the Western Section, and the net savings would be lower.

Because the Build Alternative Options would result in energy savings relative to the No Build Alternative, there would be no inefficient, wasteful, or unnecessary energy consumption. When compared with the No Build Alternative, Build Alternative Option 1 could have a moderate effect on energy resources during operational activities. When compared with Build Alternative Option 1, Build Alternative Option 2 would have slightly reduced effects due to a shorter route alignment and reduced station options (e.g., less rail infrastructure and less station facilities that could be constructed and operated). However, the magnitude of effects would be similar and considered moderate when compared with the No Build Alternative. When compared with Build Alternative Options 1 or 2, Build Alternative Option 3 may have slightly reduced effects due to a smaller footprint associated with a shorter route alignment, reduced station options, and reduced third track rail infrastructure. However, the magnitude of effects would be similar for Build Alternative Option 3 and considered moderate when compared with the No Build Alternative.

3.12.6 NEPA Summary of Potential Effects

Table 3.12-9 through Table 3.12-11 summarize the qualitative assessment of potential effects (negligible, moderate, or substantial) under NEPA for each of the Build Alternative Options. This service-level evaluation uses the Tier 1/Program EIS/EIR Study Area to determine the public utilities, solid waste facilities, and energy resources that may be affected and the relative magnitude of the effect. The level of intensity for effects is based on potential utility conflicts, resultant relocations, and service disruptions and that most utility effects can be mitigated. Specific mitigation measures to reduce effects would be analyzed at the Tier 2/Project-level phase.

Table 3.12-9. NEPA Summary of Effects on Public Utilities

Alternative Option	Potential Intensity of Effect: Western Section	Potential Intensity of Effect: Eastern Section
No Build Alternative	Construction: None Operation: None	Construction: None Operation: None
Build Alternative Option 1 (Coachella Terminus)	Construction: Negligible Operation: Negligible	Construction: Moderate Operation: Moderate

Alternative Option	Potential Intensity of Effect: Western Section	Potential Intensity of Effect: Eastern Section
Build Alternative Option 2 (Indio Terminus)	Construction: Negligible Operation: Negligible	Construction: Moderate Operation: Moderate
Build Alternative Option 3 (Indio Terminus with Limited Third Track)	Construction: Negligible Operation: Negligible	Construction: Moderate Operation: Moderate

Table 3.12-10. NEPA Summary of Effects on Solid Waste

Alternative Option	Potential Intensity of Effect: Western Section	Potential Intensity of Effect: Eastern Section
No Build Alternative	Construction: None Operation: None	Construction: Negligible Operation: Negligible
Build Alternative Option 1 (Coachella Terminus)	Construction: Negligible Operation: Negligible	Construction: Negligible Operation: Negligible
Build Alternative Option 2 (Indio Terminus)	Construction: Negligible Operation: Negligible	Construction: Negligible Operation: Negligible
Build Alternative Option 3 (Indio Terminus with Limited Third Track)	Construction: Negligible Operation: Negligible	Construction: Negligible Operation: Negligible

Table 3.12-11. NEPA Summary of Effects on Energy

Alternative Option	Potential Intensity of Effect: Western Section	Potential Intensity of Effect: Eastern Section
No Build Alternative	Construction: None Operation: None	Construction: Negligible Operation: Substantial
Build Alternative Option 1 (Coachella Terminus)	Construction: Negligible Operation: Negligible	Construction: Moderate Operation: Moderate

Alternative Option	Potential Intensity of Effect: Western Section	Potential Intensity of Effect: Eastern Section
Build Alternative Option 2 (Indio Terminus)	Construction: Negligible Operation: Negligible	Construction: Moderate Operation: Moderate
Build Alternative Option 3 (Indio Terminus with Limited Third Track)	Construction: Negligible Operation: Negligible	Construction: Moderate Operation: Moderate

3.12.7 CEQA Summary of Potential Impacts

Based on the information provided in Sections 3.12.4 and 3.12.5, and considering the CEQA Appendix G Checklist questions for utilities and service systems and energy, the Build Alternative Options would have potentially significant impacts on public utilities and energy when reviewed on a Program-wide basis. Placing the infrastructure improvements and new stations largely within or along the existing ROW would reduce the potential for significant impacts associated with existing utilities. However, because the infrastructure and station sites have not been selected, some areas that may contain utilities may be significantly impacted. At the Tier 1/Program-level of analysis, it is not possible to know the location, extent, and particular characteristics of impacts on these areas. Proposed programmatic mitigation strategies discussed in Section 3.12.8 would be applied to reduce potential impacts.

Table 3.12-12 summarizes the CEQA significance conclusions for the Build Alternative Options, the proposed programmatic mitigation strategies that could be applied to reduce, avoid, or minimize the potential impacts, and the significance determination after mitigation strategies are applied. The identification and implementation of site-specific mitigation measures necessary for Project implementation would occur as part of the Tier 2/Project-level analysis.

This page is intentionally blank.

Table 3.12-12. CEQA Summary of Impacts for Utilities and Service Systems and Energy

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Would the Program require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects?		
Construction		
Western Section – No Impact. No construction impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3 because no physical improvements are proposed or required within the Western Section.	Not applicable	Not applicable
Eastern Section – Potentially Significant. Potential construction impacts are dependent on the location of rail infrastructure improvements and station facilities, which are currently unknown. There are multiple known utilities within and adjacent to existing ROW and construction of new stations or rail infrastructure improvements may require relocation of utilities. The Tier 2/Project-level analysis would identify and mitigate impacts associated with the relocation of utility facilities once station locations and site-specific rail infrastructure improvements are known.	UTL-1 UTL-2 LU-2 LU-3	**Potentially Significant.** UTL-1, UTL-2, LU-2, and LU-3 would minimize, reduce, or avoid potential impacts associated with utilities through design and further analysis. However, impacts may remain significant and unavoidable as further analysis may determine that the construction of rail infrastructure improvements or station facilities would result in the relocation of existing utilities or construction of new utilities.
Operation		
Western Section – No Impact. The increase in train service (two additional round-trip daily trains within the Program Corridor) would not change existing land use and would not require or result in the relocation or construction of public utilities or facilities. Therefore, no operational impacts are anticipated under Build Alternative Option 1, 2, or 3 at the Tier 1/Program EIS/EIR evaluation level.	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Eastern Section – Less than Significant. Ongoing operation is not expected to require the relocation or construction of new utilities, as those impacts would occur during the construction of rail infrastructure improvements or station facilities. Therefore, a less than significant operational impact is anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.	Not applicable	Not applicable
Would the Program have sufficient water supplies available to serve the Program and reasonably foreseeable future development during normal, dry, and multiple dry years?		
Construction		
Western Section – No Impact. No construction impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level because no physical improvements are proposed or required within the Western Section under Build Alternative Option 1, 2, or 3.	Not applicable	Not applicable
Eastern Section – Potentially Significant. Although construction activities would require the use of water in site preparation, building preparation, material preparation, and for dust suppression, it is anticipated that construction water supply would not use groundwater supplies for these uses. The Tier 2/Project-level analysis would identify and evaluate impacts on specific water supplies once site-specific projects are known.	LU-2 LU-3	**Less than Significant.** LU-2 and LU-3 would minimize, reduce, or avoid potential impacts by requiring coordination with water providers through subsequent design and analysis.
Operation		
Western Section – Less Than Significant. The increase in train service (two additional round-trip daily trains within the Program Corridor) on an existing rail corridor would require maintenance of existing infrastructure. While these maintenance activities on the existing rail corridor would require some water, the amount of water needed is anticipated to be minimal. Therefore, a less than significant impact is anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Eastern Section – Potentially Significant. New rail infrastructure improvements are not anticipated to require the use of groundwater supplies during operation or maintenance activities. However, depending on the location and type of amenities identified for new station facilities, there is the potential that groundwater supplies may be needed during operation. The Tier 2/Project-level analysis would identify and evaluate the potential of site-specific Project impacts on water supplies.	UTL-1 LU-3	**Potentially Significant.** UTL-1 and LU-3 would minimize, reduce, or avoid potential impacts associated with water supplies through design and confirmation of water supply availability. However, impacts may remain significant and unavoidable as further analysis may determine that operational activities would result in water supply impacts.
Would the Program result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?		
Construction		
Western Section – No Impact. No construction impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level because no physical improvements are proposed or required within the Western Section under Build Alternative Option 1, 2, or 3.	Not applicable	Not applicable
Eastern Section – Less than Significant. During construction activities, the construction contractor would provide portable toilets on site, which would then be removed from the site on a regular basis for servicing off site at an approved wastewater handling facility. Therefore, construction activities are unlikely to produce a substantial increase in wastewater generation and would have minimal impacts on wastewater treatment facilities. A less than significant impact is anticipated at the Tier 2/Project-level analysis level under Build Alternative Option 1, 2, or 3.	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Operation		
Western Section – Less Than Significant. The increase in train service (two additional round-trip daily trains within the Program Corridor) would not change existing land use and would not result in new generation of wastewater that would impact existing wastewater facilities. A less than significant impact is anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.	Not applicable	Not applicable
Eastern Section – Potentially Significant. New rail infrastructure improvements are not anticipated to generate substantial amounts of wastewater during operation or maintenance activities. However, new station or maintenance facilities would result in a new source of wastewater that would need to be treated by the local wastewater treatment facility. The Tier 2/Project-level analysis would identify and evaluate the potential of site-specific Project impacts associated with wastewater treatment capacity demands.	UTL-2 LU-3	**Less Than Significant.** UTL-1 and LU-3 would minimize, reduce, or avoid potential impacts associated with wastewater treatment capacity demands through design and determination of wastewater service capacity.
Would the Program generate solid waste in excess or state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?		
Construction		
Western Section – No Impact. No construction impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level because no physical improvements are proposed or required within the Western Section under Build Alternative Option 1, 2, or 3.	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Eastern Section – Less than Significant. Construction activities would be required to adhere to the local jurisdictions' goals and regulations associated with solid waste disposal and recycling. Construction activities are unlikely to produce a substantial increase in solid waste and would have minimal impacts on solid waste facilities. Therefore, construction activities are unlikely to conflict with federal, state, or local regulations related to solid waste. A less than significant impact is anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.	Not applicable	Not applicable
Operation		
Western Section – Less Than Significant. The increase in train service (two additional round-trip daily trains within the Program Corridor) would not change existing land use and would not result in new generation of solid waste that would conflict with solid waste regulations. A less than significant impact is anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.	Not applicable	Not applicable
Eastern Section – Less than Significant. Operational activities would be required to adhere to the local jurisdictions' goals and regulations associated with solid waste disposal and recycling. Operational activities are unlikely to produce a substantial increase in solid waste generation and would have minimal impacts on solid waste facilities. Therefore, operational activities are unlikely to conflict with federal, state, or local regulations related to solid waste. A less than significant impact is anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Would the Program comply with federal, state, and local management and reduction statutes and regulations related to solid waste?		
Construction		
Western Section – No Impact. No construction impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level because no physical improvements are proposed or required within the Western Section under Build Alternative Option 1, 2, or 3.	Not applicable	Not applicable
Eastern Section – Less than Significant. Construction activities would be required to adhere to the local jurisdictions' goals and regulations associated with solid waste disposal and recycling. Construction activities are unlikely to produce a substantial increase in solid waste and would have minimal impacts on solid waste facilities. Therefore, construction activities are unlikely to conflict with federal, state, or local regulations related to solid waste. A less than significant impact is anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.	Not applicable	Not applicable
Operation		
Western Section – Less Than Significant. The increase in train service (two additional round-trip daily trains within the Program Corridor) would not change existing land use and would not result in new generation of solid waste that would conflict with solid waste regulations. A less than significant impact is anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Eastern Section – Less than Significant. Operational activities would be required to adhere to the local jurisdictions' goals and regulations associated with solid waste disposal and recycling. Operational activities are unlikely to produce a substantial increase in solid waste generation and would have minimal impacts on solid waste facilities. Therefore, operational activities are unlikely to conflict with federal, state, or local regulations related to solid waste. A less than significant impact is anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.	Not applicable	Not applicable
Would the Program result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during construction or operation?		
Construction		
Western Section – No Impact. No construction impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level because no physical improvements are proposed or required within the Western Section under Build Alternative Option 1, 2, or 3.	Not applicable	Not applicable
Eastern Section – Potentially Significant. Potential impacts are dependent on the location and type of rail infrastructure improvements and station facilities, which are currently unknown. Construction of Tier 2/Project-level improvements would result in energy usage by construction activities. However, because construction would be temporary and relatively short term, energy consumed during construction would represent relatively negligible demand on regional fuel supplies over time. Once detailed construction information is available, a quantitative estimate of the total energy consumption during construction would be prepared and evaluated during the Tier 2/Project-level analysis.	GHG-1	**Less than Significant.** GHG-1 would minimize, reduce, or avoid potential impacts related to energy consumption during construction by preparation of a Project-specific construction energy conservation plan during Tier 2/Project-level analysis.

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Operation		
Western Section – No Impact. No construction impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level because no physical improvements are proposed or required within the Western Section under Build Alternative Option 1, 2, or 3.	Not applicable	Not applicable
Eastern Section – Potentially Significant. Potential impacts are dependent on the location and type of rail infrastructure improvements and station facilities, which are currently unknown. Operation of subsequent Tier 2/Project-level improvements would result in energy usage that would be needed to run the passenger rail system and new station facilities. Although operation of the Program would require energy, it is anticipated that the Program would result in overall energy savings because the primary source of energy consumption for the Program (i.e., train propulsion) is more efficient than personal on-road vehicles, which are largely single use. New station facilities would also be constructed to be energy efficient, further reducing the energy needed to operate the new station facilities. Once detailed Tier 2/Project-level information is available, a quantitative estimate of the total energy consumption during operation would be prepared and evaluated during the Tier 2/Project-level analysis.	GHG-2	**Less than Significant.** GHG-2 would be implemented to minimize, reduce, or avoid potential impacts related to energy consumption during operation by preparation of a Project-specific operational energy conservation plan during Tier 2/Project-level analysis.
Would the Program conflict with or obstruct a state or local plan for renewable energy or energy efficiency?		
Construction		
Western Section – No Impact. No construction impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level because no physical improvements are proposed or required within the Western Section under Build Alternative Option 1, 2, or 3.	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Eastern Section – No Impact. Construction of the Program would support state and local plans for energy efficiency. No impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.	Not applicable	Not applicable
Operation		
Western Section – No Impact. The increase in train service (two additional round-trip daily trains within the Program Corridor) would not change existing land use and would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. No impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.	Not applicable	Not applicable
Eastern Section – No Impact. Operation of the Program under Build Alternative Option 1, 2, or 3 would result in overall energy savings because the primary source of energy consumption for the Program (i.e., train propulsion) is more efficient than personal single occupancy vehicles. Operation of the Program would support state and local plans for energy efficiency. No impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.	Not applicable	Not applicable

Notes:

EIS/EIR=environmental impact statement/environmental impact report; ROW=right-of-way

This page is intentionally blank.

3.12.8 Avoidance, Minimization, and Mitigation Strategies

Identified below are proposed programmatic mitigation strategies for further consideration in the Tier 2/Project-level analysis. Specific mitigation measures, to the extent required, would be identified and discussed during Tier 2/Project-level analysis after design details are known and specific impacts are identified. Any conflicts or potential relocations of underground utilities that would require ground disturbance would be analyzed in other applicable environmental resource areas. The Tier 2/Project-level analysis would consider whether sufficient water supplies and wastewater services are available to serve proposed Tier 2/Project improvements or station facilities. Tier 2/Project-level analyses should include more detailed information on the location of water supply lines, wastewater conveyance lines, wastewater and water pump stations, storm drains, solid waste disposal, fiber-optic lines, and telecommunication lines.

Potential mitigation measures would be developed in consultation with the agency or utility owner with jurisdiction over the utility facility and might include avoidance by shifting infrastructure improvements or minimizing the acreage of a physical take of properties containing utility facilities during planning and design.

Measures to reduce energy consumption include using energy efficient equipment and materials and preparation of a construction energy conservation plan. Proposed programmatic mitigation strategies, consistent with state and federal regulations, include, but are not limited to, the following:

Mitigation Strategy UTL-1: During Tier 2/Project-level analysis, additional water supply documentation shall be conducted by the identified lead agency or agencies to determine water supply impacts (including groundwater basin withdrawals) associated with the operation of rail infrastructure or station facility proposed. If required by the identified lead agency or agencies, this documentation may include, but is not limited to the following:

- Preparation of a site-specific water supply assessment per Senate Bill 610 requirements
- Obtainment of a water supply verification letters from the applicable water purveyor per Senate Bill 221 requirements

Mitigation Strategy UTL-2: During Tier 2/Project-level analysis, a site-specific utilities report shall be prepared for the rail infrastructure or station facility proposed. The utilities report will identify the ability for existing utility infrastructure to serve the Project, additional utility infrastructure needs, and local jurisdiction/utility provider coordination. The report shall include, but not be limited to, the following analyses:

- *Wastewater/Sewer Infrastructure.* Identification of existing sewer infrastructure, sewer capacity, required wastewater/sewer relocations, and site-specific wastewater generation estimates
- *Electrical Infrastructure.* Identification of existing electrical infrastructure, electrical capacity, required electrical infrastructure relocations, and site-specific electrical demand estimates
- *Natural Gas Infrastructure.* Identification of existing natural gas infrastructure, required natural gas infrastructure relocations, and site-specific natural gas demand estimates

Mitigation Strategy LU-2: Based on the results of a subsequent Tier 2/Project-level analysis and recommendations, the identified lead agency or agencies shall determine if a construction management plan is required for construction activities of the Tier 2/Project-level improvement being proposed. If required, a construction management plan shall be developed by the contractor and reviewed by the lead agency or agencies prior to construction and implemented during construction activities. The construction management plan shall include, but not be limited to, the following:

- Measures that minimize effects on populations and communities within the Tier 2/Project Study Area
- Measures pertaining to visual protection, air quality, safety controls, noise controls, and traffic controls to minimize effects on populations and communities within the Tier 2/Project Study Area
- Measures to ensure property access is maintained for local businesses, residences, and community and emergency services
- Measures to consult with local transit providers to minimize effects on local and regional bus routes in affected communities
- Measures to consult with local jurisdictions and utility providers to minimize effects on utilities in affected communities

Mitigation Strategy LU-3: During a subsequent Tier 2/Project-level analysis, a land use consistency analysis shall be conducted by the identified lead agency or agencies to determine consistency of the Tier 2/Project-level improvement being proposed with the applicable local jurisdictional general plans or programs. If the land use consistency analysis identifies sensitive land uses or

environmental resource within the Tier 2/Project-level Study Area, design or siting strategies shall be identified by the lead agency or agencies to avoid or minimize conflicts with sensitive land uses or environmental resources.

Mitigation Strategy GHG-1: During Tier 2/Project level analysis, a construction energy conservation plan to avoid excess energy consumption shall be required for the specific rail infrastructure or station facility proposed. The construction energy conservation plan shall identify best management practices including, but not limited to, the following:

- Identification of opportunities to use newer, more energy efficient construction equipment, vehicles, and materials
- Limit construction equipment idling
- Develop and implement a program encouraging construction workers to carpool or use public transportation for travel to and from construction sites
- Locate construction materials production facilities on-site or in proximity to project work sites
- Schedule material deliveries during off-peak hours to minimize highway congestion

Mitigation Strategy GHG-2: During Tier 2/Project-level analysis, an operational energy conservation plan shall be required for the specific rail infrastructure or station facility proposed. The operational energy conservation plan shall identify best management practices, including, but not limited to, the following:

- Limit operational idling at stations
- Identify state-of-the-art locomotives to maximize fuel efficiency
- Target-market to drivers of single-occupancy vehicles to maximize the effects of rail modal use on energy conservation and reduction of greenhouse gas emissions
- Concentrate bus-service routes to feed passengers to train stations
- Bring dispersed riders to train stations through other methods (e.g., demand response systems [paratransit, taxi, shuttle, call-and-ride])

This page is intentionally blank.