



**Program Environmental Document
and Service Development Plan**

Appendix A – Draft Tier 1/Program EIS/EIR

**Coachella Valley-San Gorgonio Pass Rail
Corridor Service Program – Combined Final Tier
1/Program EIS/EIR and ROD**

June 2022



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**Program Environmental Document
and Service Development Plan**

Tier 1/Program Environmental Impact Statement/Environmental Impact Report

Coachella Valley-San Gorgonio Pass Rail Corridor
Service Program

May 2021



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Coachella Valley-San Gorgonio Pass Rail Corridor Service Program

Draft Tier 1/Program Environmental Impact Statement/Environmental Impact Report

Pursuant to:

National Environmental Policy Act (42 USC 4321 et seq); Federal Railroad Administration Procedures for Considering Environmental Impacts (64 FR 28545, May 26, 1999); Council on Environmental Quality's Regulations Implementing NEPA (40 CFR Parts 1500-1508); National Historic Preservation Act (54 USC 300101 et seq.); Clean Air Act as amended (42 USC 7401 et seq. and 40 CFR Parts 51 and 93); the Endangered Species Act of 1973 (16 USC 1531-1544); and the Clean Water Act (33 USC 1251-1387); California Environmental Quality Act (PRC 21000 et seq); and State of California CEQA Guidelines

Prepared by the:

Federal Railroad Administration

California Department of Transportation Division of Rail and Mass Transportation

and the

Riverside County Transportation Commission



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May 13, 2021

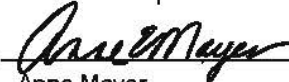
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Abstract: This document considers, describes, and summarizes the environmental impacts associated with the development of a passenger rail system to provide an alternative travel mode that would reduce travel times and improve service reliability between Los Angeles and the Coachella Valley by providing intercity and commuter rail service. The Draft Tier 1/Program EIS/EIR evaluates the potential effects of a passenger rail system within the Program Corridor on land use and planning, transportation, visual quality and aesthetics, air quality and greenhouse gases, noise and vibration, jurisdictional waters and wetland resources, biological resources, floodplains and water quality, geological and paleontological resources, hazards and hazardous materials, public utilities and energy, cultural resources, parklands and community services, safety and security, socioeconomic conditions, environmental justice, and Section 4(f)/Section 6(f) resources.

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Appendices

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Appendix B. Land Use and Planning Technical Memorandum

Appendix C. Transportation Impact Technical Memorandum

Appendix D. Visual and Aesthetics Technical Memorandum

Appendix E. Air Quality and Greenhouse Gas Technical Memorandum

Appendix F. Noise and Vibration Technical Memorandum

Appendix G. Biological and Wetland Resources Technical Memorandum

Appendix H. Cultural, Historic, and Tribal Resources Technical Memorandum

Appendix I. Socioeconomics Technical Memorandum

Abbreviations/Acronyms

AA	alternatives analysis
AB	Assembly Bill
ACS	American Community Survey
AGR	agriculture supply
ALUC	Airport Land Use Commission
ALUCP	Airport Land Use Compatibility Plan
AP	Alquist-Priolo
ARB	Air Resources Board
ASTM	ASTM International
BLM	Bureau of Land Management
BMP	best management practice
BTU	British thermal unit
CAAQS	California Ambient Air Quality Standards
CalEPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CGS	California Geological Survey
CO	carbon monoxide
COLD	cold freshwater habitats
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CWA	Clean Water Act
dB	decibel

dB(A)	A weighted decibel
EIA	Energy Information Administration
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EJ	environmental justice
EO	Executive Order
EPA	Environmental Protection Agency
FCAA	Federal Clean Air Act
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FPS	Fully Protected Species
FR	Federal Register
FRA	Federal Railroad Administration
FRSH	freshwater replenishment
FTA	Federal Transit Administration
GHG	greenhouse gas
GIS	geographic information system
GPSCVB	Greater Palm Springs Convention and Visitors Bureau
GWR	groundwater recharge
HCP	Housing and Urban Development Consolidated Plan
I	Interstate
IND	industrial service supply
LAUS	Los Angeles Union Station
L _{dn}	day-night average noise level
L _{eq}	equivalent sound level
LOSSAN	Los Angeles-San Diego-San Luis Obispo
LRA	local responsibility area
LUST	leaking underground storage tank
LWCF	Land and Water Conservation Fund
Metro	Los Angeles County Metropolitan Transportation Authority
MMBTU	million British thermal unit
MPO	metropolitan planning organization

MRZ	Mineral Resource Zone
MS4	Municipal Separate Storm Sewer System
MSHCP	Multiple Species Habitat Conservation Plan
MUN	municipal and domestic water supply
MUTCD	Manual on Uniform Traffic Control Devices
NAAQS	National Ambient Air Quality Standards
NAC	noise abatement criteria
NCCP	Natural Communities Conservation Planning
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO ₂	nitrogen dioxide
NOA	Notice of Availability
NOC	Notice of Completion
NOI	Notice of Intent
NOP	Notice of Preparation
NO _x	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
O ₃	ozone
OHP	Office of Historic Preservation
Pb	lead
PeMS	Performance Measurement System
PM ₁₀	particulate matter 10 microns or less
PM _{2.5}	particulate matter 2.5 microns or less
POW	hydropower generation
PPV	peak particle velocity
PRC	Public Resource Code
PROC	industrial process supply
Program	Coachella Valley-San Gorgonio Pass Rail Corridor Service Program
Program Corridor	Coachella Valley-San Gorgonio Pass Rail Corridor
PTC	positive train control

RARE	rare, threatened, or endangered species
RCRA	Resource Conservation and Recovery Act of 1976
RCTC	Riverside County Transportation Commission
REC1	water contact recreation
REC2	noncontact water recreation
ROW	right-of-way
RSIA	Rail Safety Improvement Act of 2008
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SBCTA	San Bernardino County Transportation Authority
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCRRA	Southern California Regional Rail Authority
SCS	Sustainable Communities Strategy
SDP	Service Development Plan
SHPO	State Historic Preservation Officer
SO ₂	sulfur dioxide
SO _x	sulfur oxide
SR	State Route
SRA	State Responsibility Area
SSAB	Salton Sea Air Basin
SSC	Species of Special Concern
STRACNET	Strategic Rail Corridor Network
SWRCB	State Water Resources Control Board
TCR	tribal cultural resource
THPO	Tribal Heritage Preservation Officer
TMDL	total maximum daily load
TSCA	Toxic Substance Control Act
U.S.	United States
UBC	Uniform Building Code
Uniform Act	Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970

UP	Union Pacific Railroad
USACE	United States Army Corps of Engineers
USC	United States Code
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tank
VdB	velocity in decibels
VMT	vehicle miles traveled
VOC	volatile organic compound
WARM	warm freshwater habitat
WET	wetland habitat
WILD	wildlife habitat

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ES.1 Executive Summary

Pursuant to the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA); the Federal Railroad Administration (FRA), California Department of Transportation (Caltrans) Division of Rail and Mass Transportation, and Riverside County Transportation Commission (RCTC) prepared this joint Draft Tier 1/Program Environmental Impact Statement (EIS)/Environmental Impact Report (EIR) to evaluate and disclose the potential environmental consequences of the Coachella Valley-San Gorgonio Pass Rail Corridor Service Program (Program). The Program is proposing the implementation of passenger rail service options between Los Angeles Union Station (LAUS) in Los Angeles County, California and the City of Coachella in Riverside County, California. This corridor-level conceptual study evaluates alternatives along the 144-mile-long Coachella Valley-San Gorgonio Pass Rail Corridor (Program Corridor).

For this Tier 1/Program EIS/EIR, FRA and Caltrans are the joint lead agencies for the environmental review under NEPA, and RCTC is the lead agency under CEQA.

This Tier 1/Program EIS/EIR represents the first step within a tiered approach to NEPA analyses in accordance with the Council on Environmental Quality's (CEQ) Regulations for Implementing NEPA (40 Code of Federal Regulations [CFR] Parts 1500–1508), FRA's Procedures for Considering Environmental Impacts (64 *Federal Register* [FR] 28545, May 26, 1999), and CEQA Guidelines Sections 15168 and 15170. Tiering under NEPA and CEQA involves the evaluation of broad-level programs and issues in an initial Tier 1/Program-level analysis followed by more detailed evaluation of specific improvements in subsequent Tier 2/Project-level analyses.

This Tier 1/Program EIS/EIR evaluates potential environmental impacts of the No Build Alternative and the three Build Alternative Options broadly within the Program Corridor. The Program Corridor provides a flexible regional context for the best location of an enhanced passenger rail system while providing opportunities for the Build Alternative Options within the Program Corridor to account for engineering and environmental constraints, as well as public input.

This Tier 1/Program EIS/EIR is the basis for a Tier 2/Project-level analysis by identifying the Build Alternative Option to be advanced for further study and analysis. As such, no construction would be authorized as a result of the Tier 1/Program evaluation. During Tier 2/Project-level analysis, the selected Build Alternative Option identified in the Tier 1/Program-level analysis would be further developed and the environmental effects of the site-specific rail infrastructure and station facilities evaluated prior to final design and construction. The Tier 2/Project-level analysis would include refined engineering design; additional public involvement; site-specific quantitative analyses of environmental effects; and the identification of site-specific avoidance, minimization, and mitigation measures.

ES.1.1 Purpose and Need

The Program's Purpose is to implement a safe, reliable, and convenient intercity passenger rail service in the Program Corridor with the capability to meet the future mobility needs of residents, businesses, and visitors and meet the following objectives:

1. Provides travelers between the Los Angeles Basin and the Coachella Valley with a public transportation service that offers more convenient, reliable, and competitive trip times; better station access; and more frequency than currently available public transportation services
2. Provides travelers between the Los Angeles Basin and the Coachella Valley with an alternative to driving that offers reliable travel schedules
3. Provides travelers between the Los Angeles Basin and the Coachella Valley with an affordable transportation service
4. Serves a range of trip purposes traveling between the Los Angeles Basin and the Coachella Valley, particularly including business and personal trips
5. Improves regional travel opportunities between the Los Angeles Basin and the Coachella Valley for individuals without private vehicles
6. Serves the expected population growth in the Los Angeles Basin and the Coachella Valley
7. Assists regional agencies in meeting air pollution and greenhouse gas (GHG) emission reduction targets as mandated in state and federal regulations

The Program's Need is to address the absence of effective transportation alternatives to personal automobile travel between coastal regions of Southern California (e.g., Los Angeles and Orange Counties) and cities in the Inland Empire (e.g., City of Riverside) and the Coachella Valley (e.g., Cities of Coachella, Indio, Palm Springs); the projected increase in travel demand in the Program

Corridor resulting from population and employment growth; and the increasing unreliability of existing transportation systems within the Program Corridor.

ES.1.2 Program History and Prior Planning Activities

This Tier 1/Program EIS/EIR is preceded by several years of preliminary Program development activities. In 1991, RCTC completed the first in a series of studies evaluating the feasibility of operating one or two daily intercity passenger rail round trips between Los Angeles and Indio. From 1991 to 2013, RCTC completed additional feasibility studies on the Program Corridor. In July 2016, RCTC, in coordination with Caltrans and FRA, prepared and completed the 2016 Alternatives Analysis (AA) Report (summarized in Chapter 2, Program Alternatives, of this Tier 1/Program EIS/EIR) that evaluated a reasonable range of alternatives for implementation of daily intercity passenger rail service between Los Angeles and Indio. The purpose of the 2016 AA Report was to identify a reasonable range of preliminary alternative(s) that could be evaluated in a subsequent Service Development Plan (SDP) and Tier 1/Program EIS/EIR.

ES.1.3 Program Overview

The Program Corridor, which connects the Los Angeles metropolitan area with the Coachella Valley through the San Gorgonio Pass, currently has no daily intercity passenger rail service that services the Coachella Valley. While the Program Corridor contains existing rail lines and rail infrastructure, these existing rail systems currently support freight rail and the occasional Amtrak rail service. The proposed implementation of intercity passenger rail service in the Program Corridor, including the planning and construction of rail infrastructure improvements required to establish the service, are collectively known as the Coachella Valley-San Gorgonio Pass Rail Corridor Service Program.

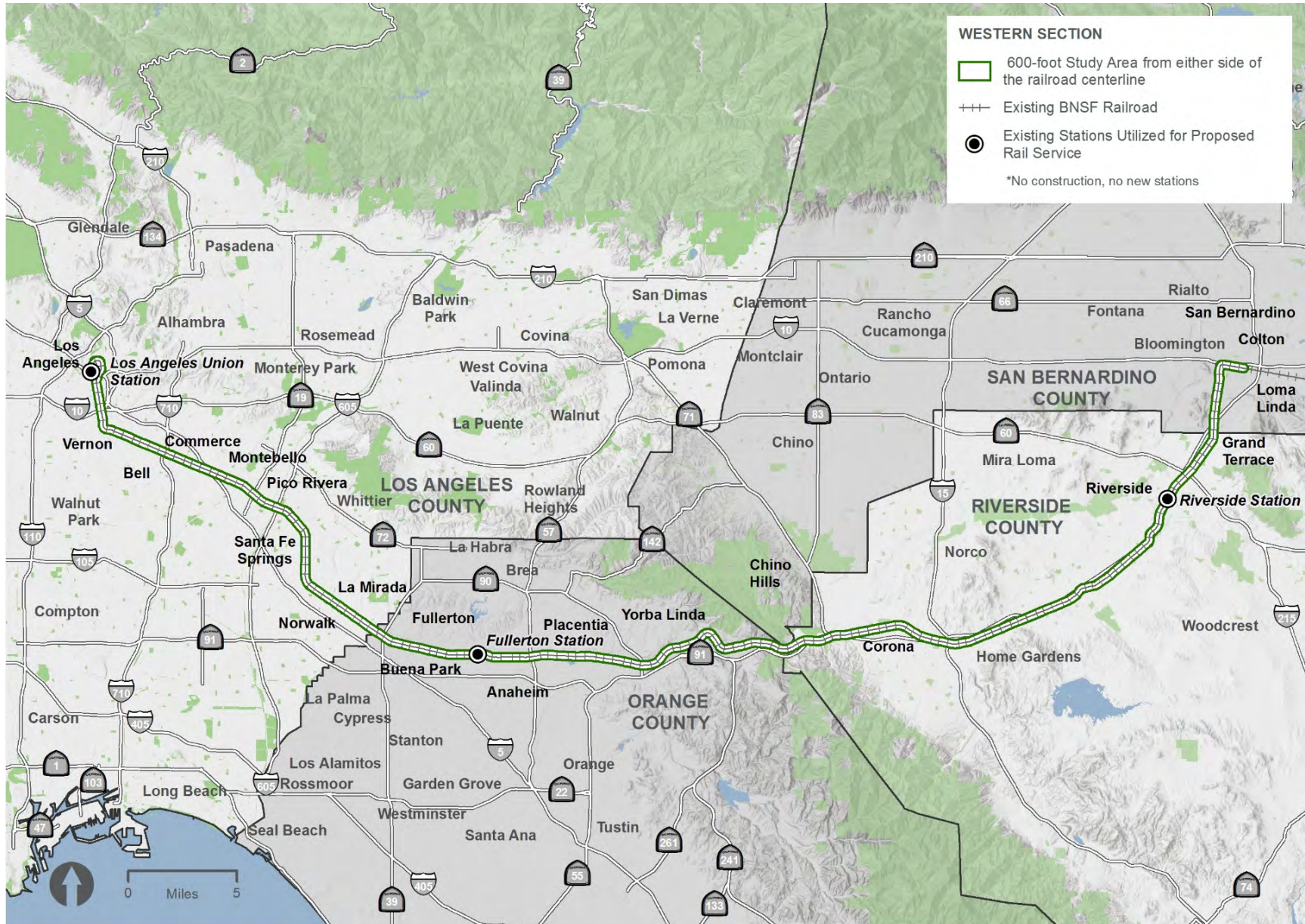
The Program Corridor runs west-to-east, extending from a western terminus at LAUS to an eastern terminus in either the City of Indio or City of Coachella and consists of two sections: the Western Section and the Eastern Section. The boundary between the Western and Eastern Sections is in the City of Colton, at the intersection of existing railroad lines owned by Union Pacific Railroad (UP) and BNSF.

Passenger train frequencies proposed as part of the Program would consist of two daily round-trip intercity passenger trains operating the entire length of the Program Corridor between Los Angeles and the Cities of Indio or Coachella, with one morning departure and one afternoon departure from each end of the Program Corridor. Both proposed eastern terminus options would require construction of a new station, as neither the City of Indio nor the City of Coachella has existing stations to accommodate the proposed passenger rail service.

ES.1.4 Alternatives Considered

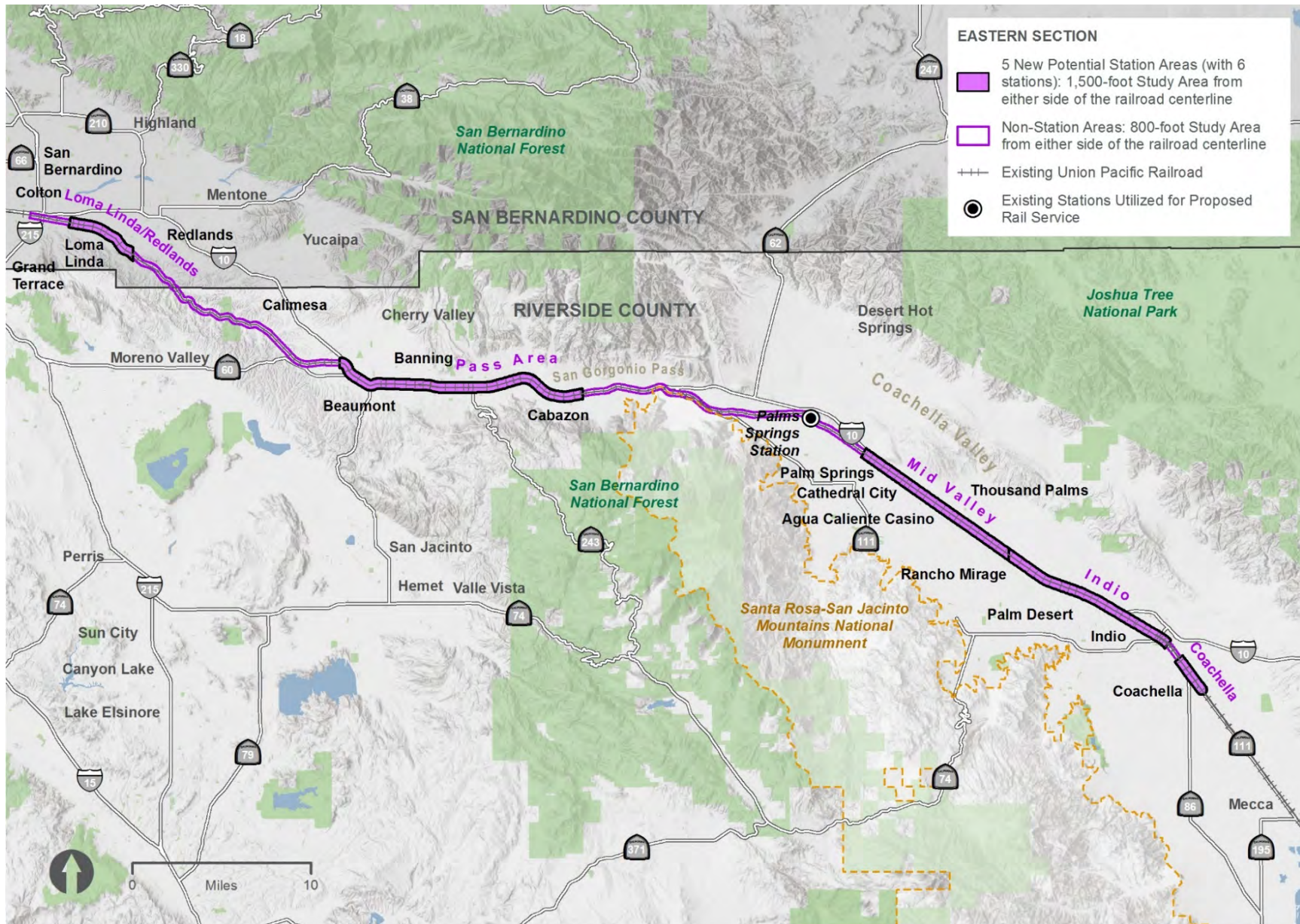
The Tier 1/Program EIS/EIR evaluates the No Build Alternative and three Build Alternative Options in the two geographic sections, as shown on Figure ES-1 through Figure ES-3. The Build Alternative Options have been developed to a level of detail appropriate for a Tier 1/Program service-level evaluation. The Tier 1/Program EIS/EIR Study Area represents the potential area where rail infrastructure improvements and station facilities could be implemented and constructed but does not represent the precise location or footprint of the improvement or facility. If a Build Alternative Option is selected, the Tier 2/Project-level analysis will consider further refinements to the Tier 1/Program EIS/EIR Study Area to optimize performance, reduce cost, and avoid or reduce impacts on properties and environmental resources.

Figure ES-1. Western Section of the Program Corridor (Build Alternative Options 1, 2, and 3)



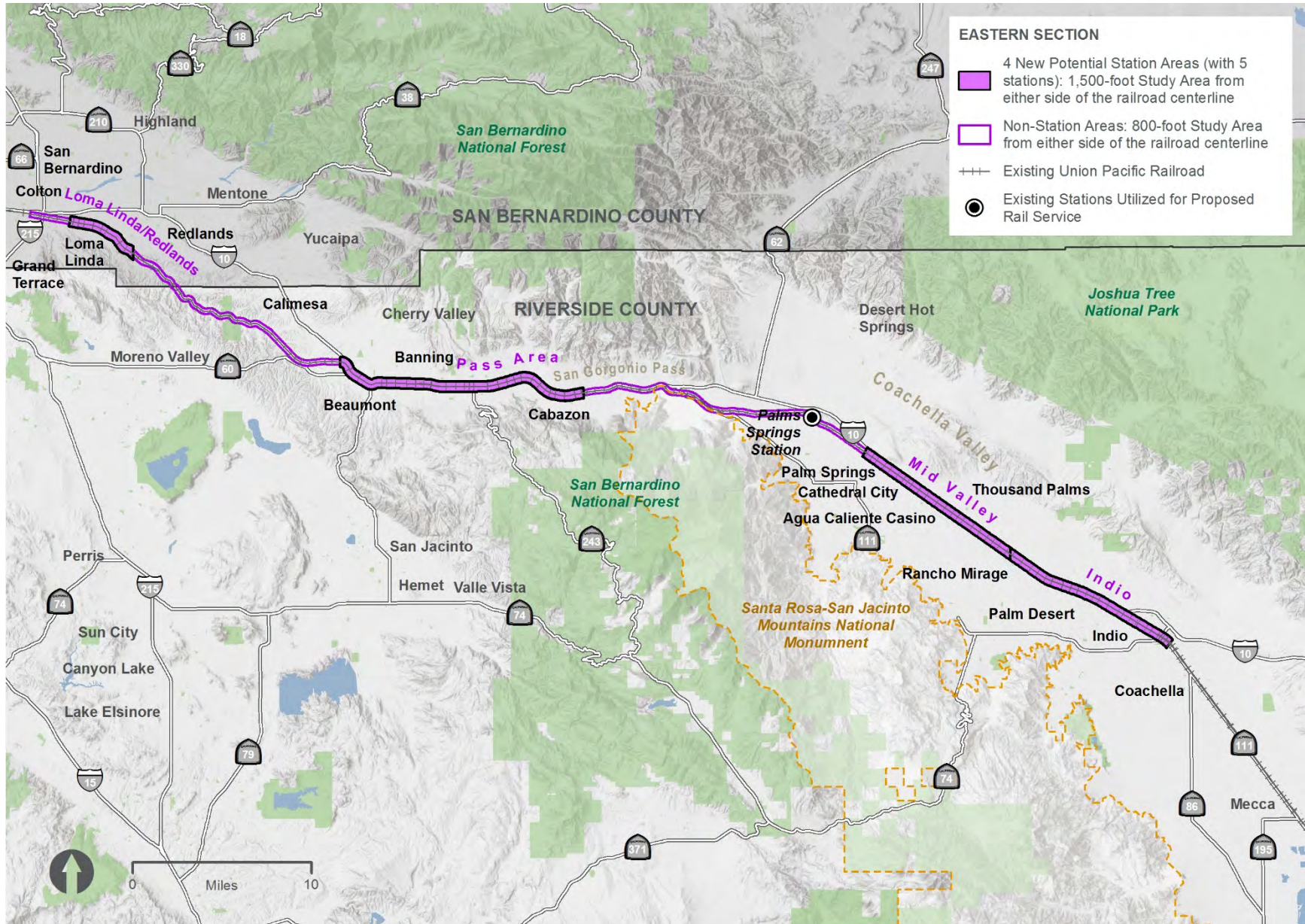
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Figure ES-2. Eastern Section of the Program Corridor (Build Alternative Option 1)



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Figure ES-3. Eastern Section of the Program Corridor (Build Alternative Options 2 and 3)



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ES.1.4.1 No Build Alternative

The No Build Alternative would not fulfill the Program’s Purpose and Need but is carried forward as a baseline alternative against which the Build Alternative Options are compared. The No Build Alternative assumes no new passenger rail service is implemented in the Program Corridor except for existing and committed transportation improvements (Table 2-7 and Table 2-8 in Chapter 2, Program Alternatives, of this Tier 1/Program EIS/EIR include a full list of programmed and planned capacity improvements projects).

ES.1.4.2 Build Alternative Option 1 (Coachella Terminus)

Build Alternative Option 1 includes a total Program Corridor distance of 144 miles and consists of a Western Section, terminating at LAUS, and an Eastern Section, terminating in the City of Coachella, the details of which are as follows:

Western Section. Under Build Alternative Option 1, existing rail infrastructure would be used in the Western Section of the Program Corridor, and no additional railroad infrastructure improvements would be required. LAUS would serve as the western terminus, while existing stations in the Cities of Fullerton and Riverside would be utilized to support the proposed passenger rail service. No new stations or improvements to existing stations would be required to accommodate the proposed service within the Western Section of the Program Corridor.

Eastern Section. Under Build Alternative Option 1, potential new infrastructure improvements on the Eastern Section of the Program Corridor could include sidings, additional main line track, wayside signals, drainage, grade-separation structures, and station facilities to accommodate the proposed passenger rail service. As part of the SDP and Tier 1/Program EIS/EIR process, rail operations simulation modeling is being conducted to identify potential infrastructure needs. Upon completion of the SDP and the Tier 1/Program EIS/EIR process, the specific infrastructure improvements would be determined and refined through coordination and additional consultations with UP, RCTC, Caltrans, and FRA prior to Tier 2/Project-level analysis.¹ Potential rail infrastructure improvements and station facilities could include:

- Up to five new stations;

¹ The Tier 2/Project-level process does not automatically follow the Tier 1/Program process, rather a project would be defined based on the Tier 1/Program Environmental Impact Statement (EIS)/ Environmental Impact Report (EIR) broad project scope and funded at that time. The Tier 2/Project-level process would be a separate environmental document and could be funded and led by an agency other than the Federal Railroad Administration (FRA) and Riverside County Transportation Commission (RCTC), depending upon the source of funding.

- A third main line track to augment the existing two-track main line along the Eastern Section of the Program Corridor to Coachella;
- Various crossovers connecting the existing main line tracks to the new third main line track;
- A new second Mt. Vernon connector track in Colton;
- A new siding at Loma Linda to allow passenger trains to meet, reducing delay;
- A new railroad bridge across the Santa Ana River; and
- Additional infrastructure components throughout the Program Corridor including, but not limited to, wayside signals, drainage structures, and grade-separation structures.

Under Build Alternative Option 1, the proposed passenger rail services within the Eastern Section of the Program Corridor would use the existing station in the City of Palm Springs. Additionally, up to five new potential stations could be constructed in the following areas: 1) Loma Linda/Redlands Area (serving the Cities of Loma Linda and Redlands), 2) the Pass Area (serving the communities of Beaumont, Banning, and Cabazon), 3) the Mid-Valley Area (serving the communities of Cathedral City, Thousand Palms, the Agua Caliente Casino area, Rancho Mirage, and Palm Desert), 4) the City of Indio, and 5) the City of Coachella as the eastern terminus of the Program Corridor.

As shown on Figure ES-2, the Tier 1/Program EIS/EIR Study Area for the Eastern Section of the Program Corridor identifies station catchment areas where future station facilities could be constructed in addition to other rail infrastructure improvements along the existing rail right-of-way (ROW). The Tier 1/Program EIS/EIR service-level evaluation does not clear these potential future station facilities or rail infrastructure improvements for construction. Completion of Tier 2/Project-level environmental review would be required prior to implementation of site-specific infrastructure improvements, including station locations.

As part of Build Alternative Option 1, additional rail infrastructure improvements for the Eastern Section of the Program Corridor have been considered. These potential infrastructure improvements include the addition of station tracks and a third main line track, as follows:

- **Station tracks:** The station tracks improvements would consist of construction of new controlled track sidings that augment operational flexibility by creating a location off of the existing main line tracks that would allow passenger trains to stop for the boarding and alighting of passengers at station platforms, thereby reducing rail traffic congestion on the main line tracks. Station tracks would be approximately 1 mile or less in length and located at or near proposed station locations. The station tracks could include, but not be limited to, the following components and/or construction requirements:
 - Components and/or construction requirements of the station tracks may include grading for the additional track, turnout construction pads, and signal berms.
 - Drainage improvements may include culvert extensions and new standalone bridge structures or modifications to existing bridges.
 - Other structural components of station tracks would include roadway overpass modifications or reconstruction, as well as pier protection for existing structures.
 - Retaining walls may be required at certain locations to contain the improvements within the UP ROW.
 - Existing at-grade crossings would require modification to allow for the placement of an additional crossing surface for the new tracks and relocation or replacement of automatic warning devices.
 - Track construction would consist of UP-standard track sections, with track centers of 20 feet or more, using new continuously welded rail. Signal and communication infrastructure would be upgraded and augmented, as required.

- **Third main track:** A third main line track would augment the existing two main tracks along the Eastern Section of the Program Corridor to Coachella. The third main line track would be constructed primarily within the existing UP ROW; however, possible slopes could extend outside the existing UP ROW in certain locations. Many of the features described above for the station track scenario would also be constructed under this scenario, but the construction activities would not be restricted to railroad segments near the proposed stations. To facilitate operation, additional universal crossovers would be constructed, and existing crossover locations may be relocated due to topographic constraints. The third main line track scenario is consistent with the infrastructure improvements proposed through the rail operations modeling work to achieve 90 percent on-time performance of passenger rail service without adding delay to freight rail service in the Eastern Section of the Program Corridor.

ES.1.4.3 Build Alternative Option 2 (Indio Terminus)

Build Alternative Option 2 includes a total Program Corridor distance of 140.25 miles and consists of a Western Section, terminating at LAUS, and an Eastern Section, terminating at the City of Indio, the details of which are as follows:

Western Section. The Western Section under Build Alternative Option 2 would be the same as that described above under Build Alternative Option 1.

Eastern Section. Build Alternative Option 2 would require potential new rail infrastructure improvements on the Eastern Section of the Program Corridor and could include sidings, additional main line track, wayside signals, drainage, grade-separation structures, and station facilities to accommodate the proposed passenger rail service. Potential rail infrastructure improvements and station facilities under Build Alternative Option 2 could include:

- Up to four new stations;
- A third main line track to augment the existing two track main line along the Eastern Section of the Program Corridor to Indio;
- Various crossovers connecting the existing main line tracks to the new third main line track;
- A new second Mt. Vernon connector track in Colton;
- A new siding at Loma Linda to allow passenger trains to meet, reducing delay;
- A new railroad bridge across the Santa Ana River; and
- Additional infrastructure components throughout the Program Corridor including, but not limited to, wayside signals, drainage structures, and grade-separation structures.

Under Build Alternative Option 2, passenger rail services within the Eastern Section of the Program Corridor would use the existing station in the City of Palm Springs. Additionally, up to four new potential stations could be constructed in the following areas: 1) Loma Linda/Redlands Area (serving the Cities of Loma Linda and Redlands), 2) the Pass Area (serving the communities of Beaumont, Banning, and Cabazon), 3) the Mid-Valley Area (serving the communities of Cathedral City, Thousand Palms, the Agua Caliente Casino area, Rancho Mirage, and Palm Desert), and 4) the City of Indio as the eastern terminus of the Program Corridor.

As shown on Figure ES-3, the Tier 1/Program EIS/EIR Study Area for the Eastern Section of the Program Corridor identifies station catchment areas where future station facilities could be constructed in addition to other rail infrastructure improvements along the existing rail ROW. The Tier 1/Program EIS/EIR service-level evaluation does not clear these potential future station facilities or rail infrastructure improvements for construction. Completion of Tier 2/Project-level environmental review would be required prior to implementation of site-specific infrastructure improvements, including station locations.

As part of Build Alternative Option 2, additional infrastructure improvements for the Eastern Section of the Program Corridor have been considered. These potential infrastructure improvements include the addition of station tracks and a third main line track. The addition of station tracks would be the same as described under Build Alternative Option 1; however, the third track under Build Alternative Option 2 would augment the existing two main tracks along the Eastern Section of the Program Corridor to the proposed Indio Station Area.

ES.1.4.4 Build Alternative Option 3 (Indio Terminus with Limited Third Track)

Build Alternative Option 3 includes a total Program Corridor distance of 140.25 miles and consists of a Western Section, terminating at LAUS, and an Eastern Section, terminating at the City of Indio, the details of which are as follows:

Western Section. The Western Section under Build Alternative Option 3 would be the same as that described above under Build Alternative Options 1 and 2.

Eastern Section. The Eastern Section under Build Alternative Option 3 would be the same as that described above under Build Alternative Option 2, except for the following differences:

As part of Build Alternative Option 3, additional infrastructure improvements for the Eastern Section of the Program Corridor have been considered. These potential infrastructure improvements include the addition of station tracks and a third main line track. The addition of station tracks would be the same as described under Build Alternative Options 1 and 2; however, the addition of the third main

track would be limited under Build Alternative Option 3 when compared with Build Alternative Options 1 and 2. The limited third track under Build Alternative Option 3 would augment the existing two main tracks along the Eastern Section of the Program Corridor to the proposed Mid-Valley Station Area.

ES.1.4.5 Recommended Preferred Alternative

The No Build Alternative does not meet the Program Purpose and Need and would not shift highway trips within the Program Corridor, reduce congestion, increase access to employment and activity centers, or provide reliable travel times and a level of safety comparable to that offered by passenger rail travel. The No Build Alternative would not connect the suburban and rural areas between Los Angeles and the Coachella Valley with a high-capacity travel option, facilitate continued development of a multimodal transportation network, or provide mobility choices for existing and future needs.

Considering the projected ridership, agency and public input, and potential environmental impacts associated with implementing passenger rail within the Program Corridor, Build Alternative Option 1 is considered to be better performing than Build Alternative Option 2 or 3, with similar potential impacts on the environment. Based on the analysis contained in this Tier 1/Program EIS/EIR service-level evaluation and as summarized in Chapter 7, Evaluation of Alternatives, Build Alternative Option 1 is identified as the recommended preferred alternative for purposes of NEPA and CEQA.

ES.1.5 Summary of Effects

This section summarizes the potential effects of implementation of the Build Alternative Options based on the analysis of the social, economic, and environmental resources documented in Chapter 3, Environmental Analysis, Consequences, and Mitigation. The No Build Alternative is carried forward as a baseline against which the Build Alternative Options are compared. The potential effects, and differences in effects among Build Alternative Options, are described in each resource section and summarized in Table ES-1, respectively. Station locations have not yet been selected, but general considerations regarding station effects are discussed.

The potential for effects and comparison of effects among Build Alternative Options are based on an initial survey of resources within Tier 1/Program EIS/EIR Study Area for each Build Alternative Option.

Table ES-1.Summary of Resource Effects by Build Alternative Option

Environmental Topic	No Build Alternative	Build Alternative Option 1	Build Alternative Option 2	Build Alternative Option 3
Land Use and Planning	<p>Land Use Compatibility</p> <p>Under the No Build Alternative, passenger rail service between Coachella and Los Angeles would not be established, and land would not be allocated for rail infrastructure or station facilities. Although this may prevent potential displacements of existing and planned land uses, it would increase the likelihood for displacing land uses adjacent to existing highways, such as I-10, SR 60, and SR 111, which would likely need to be widened to accommodate the projected demands for capacity as population in the region increases. In addition, the No Build Alternative would be inconsistent with federal, state, and regional plans and policies that promote expansion of existing transportation options, as well as multimodal connectivity throughout the region.</p> <p>Agricultural Resources</p> <p>No effects on agricultural resources are anticipated under the No Build Alternative.</p>	<p>Land Use Compatibility</p> <p><i>Construction:</i> Negligible effects within Western Section as no construction activities required. Potentially moderate effects could occur within the Eastern Section due to temporary construction effects and permanent ROW acquisitions beyond the extent of the existing railroad ROW.</p> <p><i>Operation:</i> Negligible effects within Western Section as no additional stations or rail infrastructure are required or land use changes anticipated. Potentially moderate effects could occur within the Eastern Section due to the land use changes associated with the addition of new stations and track infrastructure.</p> <p>Agricultural Resources</p> <p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Substantial effects could occur within the Eastern Section associated with conversion of designated agricultural land to non-agricultural use.</p> <ul style="list-style-type: none"> • Prime farmland: 560.40 acres • Unique farmland: 96.70 acres • Farmland of statewide importance: 22.60 acres • Farmland of local importance: 2,623.90 acres • Grazing land: 1,923.20 acres • Agricultural preserve: 760.82 acres <p><i>Operation:</i> Negligible effects in Western Section and Eastern Section once construction activities are completed.</p>	<p>Land Use Compatibility</p> <p><i>Construction:</i> Negligible effects within Western Section as no construction activities required. Potentially moderate effects could occur within the Eastern Section due to temporary construction effects and permanent ROW acquisitions beyond the extent of the existing railroad ROW.</p> <p><i>Operation:</i> Negligible effects within Western Section as no additional stations or rail infrastructure are required or land use changes anticipated. Potentially moderate effects could occur within the Eastern Section due to the land use changes associated with the addition of new stations and track infrastructure.</p> <p>Agricultural Resources</p> <p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Substantial effects could occur within the Eastern Section associated with conversion of designated agricultural land to non-agricultural use.</p> <ul style="list-style-type: none"> • Prime farmland: 362.50 acres • Unique farmland: 96.70 acres • Farmland of statewide importance: 22.60 acres • Farmland of local importance: 2,549.90 acres • Grazing land: 1,923.20 acres • Agricultural preserve: 760.82 acres <p><i>Operation:</i> Negligible effects in Western Section and Eastern Section once construction activities are completed.</p>	<p>Land Use Compatibility</p> <p><i>Construction:</i> Negligible effects within Western Section as no construction activities required. Potentially moderate effects could occur within the Eastern Section due to temporary construction effects and permanent ROW acquisitions beyond the extent of the existing railroad ROW.</p> <p><i>Operation:</i> Negligible effects within Western Section as no additional stations or rail infrastructure are required or land use changes anticipated. Potentially moderate effects could occur within the Eastern Section due to the land use changes associated with the addition of new stations and track infrastructure.</p> <p>Agricultural Resources</p> <p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Substantial effects could occur within the Eastern Section associated with conversion of designated agricultural land to non-agricultural use.</p> <ul style="list-style-type: none"> • Prime farmland: 362.50 acres • Unique farmland: 96.70 acres • Farmland of statewide importance: 22.60 acres • Farmland of local importance: 2,549.90 acres • Grazing land: 1,923.20 acres • Agricultural preserve: 760.82 acres <p><i>Operation:</i> Negligible effects in Western Section and Eastern Section once construction activities are completed.</p>

Environmental Topic	No Build Alternative	Build Alternative Option 1	Build Alternative Option 2	Build Alternative Option 3
Transportation	<p>Under the No Build Alternative, longer travel times and increased VMT would be anticipated as regional growth within the Program Corridor continues and roadway congestion increases. Therefore, the No Build Alternative could result in air quality effects and potential additional noise effects on the surrounding land uses, which could affect sensitive receptors adjacent to existing transportation corridors.</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Moderate to substantial effects in Eastern Section associated with rail operations, railroad/roadway crossings, and traffic due to potential temporary closure of lanes, sidewalks, bicycle lanes and routes, driveways, streets, and freeway lanes.</p> <p><i>Operation:</i> Build Alternative Option 1 is anticipated to shift auto trips to intercity rail passenger trips, thereby reducing vehicle trips and VMT on the regional highways.</p> <p><i>Annual Auto Trips and VMT Reduction by Horizon Year:</i></p> <p>Opening Year (2024) auto trip reduction: 107,344 trips</p> <p>Opening Year (2024) VMT reduction: 10,498,246 miles</p> <p>Future Year (2044) auto trip reduction: 178,045 trips</p> <p>Future Year (2044) VMT reduction: 17,412,809 miles</p> <p><i>Ridership:</i> Expected to increase by 66 percent from 204,107 one-way trips in Opening Year (2024) to 338,540 one-way trips in Future Year (2044).</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Moderate to substantial effects in Eastern Section associated with rail operations, railroad/roadway crossings, and traffic due to potential temporary closure of lanes, sidewalks, bicycle lanes and routes, driveways, streets, and freeway lanes.</p> <p><i>Operation:</i> Build Alternative Option 2 is anticipated to shift auto trips to intercity rail passenger trips, thereby reducing vehicle trips and VMT on the regional highways.</p> <p><i>Annual Auto Trips and VMT Reduction by Horizon Year:</i></p> <p>Opening Year (2024) auto trip reduction: 99,026 trips</p> <p>Opening Year (2024) VMT reduction: 9,682,718 miles</p> <p>Future Year (2044) auto trip reduction: 164,248 trips</p> <p>Future Year (2044) VMT reduction: 16,060,152 miles</p> <p><i>Ridership:</i> Expected to increase by 66 percent from 188,290 one-way trips in Opening Year (2024) to 312,306 one-way trips in Future Year (2044).</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Moderate to substantial effects in Eastern Section associated with rail operations, railroad/roadway crossings, and traffic due to potential temporary closure of lanes, sidewalks, bicycle lanes and routes, driveways, streets, and freeway lanes.</p> <p><i>Operation:</i> Build Alternative Option 3 is anticipated to shift auto trips to intercity rail passenger trips, thereby reducing vehicle trips and VMT on the regional highways.</p> <p><i>Annual Auto Trips and VMT Reduction by Horizon Year:</i></p> <p>Opening Year (2024) auto trip reduction: 99,026 trips</p> <p>Opening Year (2024) VMT reduction: 9,682,718 miles</p> <p>Future Year (2044) auto trip reduction: 164,248 trips</p> <p>Future Year (2044) VMT reduction: 16,060,152 miles</p> <p><i>Ridership:</i> Expected to increase by 66 percent from 188,290 one-way trips in Opening Year (2024) to 312,306 one-way trips in Future Year (2044).</p>

Environmental Topic	No Build Alternative	Build Alternative Option 1	Build Alternative Option 2	Build Alternative Option 3
Visual Quality and Aesthetics	<p>Because no physical changes would occur, no effects on views of visual resources, visual character or quality, or light and glare conditions are anticipated under the No Build Alternative.</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Negligible effects on visual quality and aesthetics within the Eastern Section as construction activities would not permanently obstruct views of the landscape, change the visual character, result in degradation of visual quality, or add significant new sources of light or glare.</p> <p><i>Operation:</i> Negligible effects in Western Section as trains would operate within existing ROW and the addition of two daily roundtrips would not result in notable changes to visual quality and aesthetics. Potentially moderate effects could occur in the Eastern Section if the improvements would remove structures, remove landscaping, or introduce visual elements that are out of scale or otherwise visually incompatible with the existing visual character, and/or add increased light levels or spillover lighting into adjacent areas.</p> <p><i>Visual Resources:</i></p> <p>Park/trail: 27</p> <p>Designated scenic highway: 0</p> <p>NRHP site: 7</p> <p>NRHP district: 1</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Negligible effects on visual quality and aesthetics within the Eastern Section as construction activities would not permanently obstruct views of the landscape, change the visual character, result in degradation of visual quality, or add significant new sources of light or glare.</p> <p><i>Operation:</i> Negligible effects in Western Section as trains would operate within existing ROW and the addition of two daily roundtrips would not result in notable changes to visual quality and aesthetics. Potentially moderate effects could occur in the Eastern Section if the improvements would remove structures, remove landscaping, or introduce visual elements that are out of scale or otherwise visually incompatible with the existing visual character, and/or add increased light levels or spillover lighting into adjacent areas.</p> <p><i>Visual Resources:</i></p> <p>Park/trail: 25</p> <p>Designated scenic highway: 0</p> <p>NRHP site: 7</p> <p>NRHP district: 1</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Negligible effects on visual quality and aesthetics within the Eastern Section as construction activities would not permanently obstruct views of the landscape, change the visual character, result in degradation of visual quality, or add significant new sources of light or glare.</p> <p><i>Operation:</i> Negligible effects in Western Section as trains would operate within existing ROW and the addition of two daily roundtrips would not result in notable changes to visual quality and aesthetics. Potentially moderate effects could occur in the Eastern Section if the improvements would remove structures, remove landscaping, or introduce visual elements that are out of scale or otherwise visually incompatible with the existing visual character, and/or add increased light levels or spillover lighting into adjacent areas.</p> <p><i>Visual Resources:</i></p> <p>Park/trail: 25</p> <p>Designated scenic highway: 0</p> <p>NRHP site: 7</p> <p>NRHP district: 1</p>

Environmental Topic	No Build Alternative	Build Alternative Option 1	Build Alternative Option 2	Build Alternative Option 3
Air Quality and Greenhouse Gases	<p>Projected future growth in the Program Corridor would result in a corresponding increase in traffic and VMT as more cars would be on the roadways. Therefore, traffic congestion is likely to worsen with the No Build Alternative, resulting in air quality effects. Similarly, with the continued trend in increases of VMT within the Program Corridor, fossil fuel consumption and associated GHG emissions would likely increase under the No Build Alternative. Similarly, while no Program-related construction or increase in service would occur, freight and intercity rails trips from other planned and future projects would result in air quality effects within the Program Corridor under the No Build Alternative.</p>	<p><i>Construction:</i> Negligible air quality and GHG effects in the Western Section as no construction activities are proposed. Substantial air quality effects in the Eastern Section could occur due to construction air quality emissions exceeding localized air quality standards.</p> <p><i>Operation:</i> Localized air quality effects could be substantial; however, operation of the Program would generally result in long-term net benefits to air quality through reduction of criteria pollutants through a decrease in regional VMT. Substantial GHG benefits are anticipated as operation would reduce regional vehicle trips and VMT, resulting in a reduction of GHG emissions.</p>	<p><i>Construction:</i> Negligible air quality and GHG effects in the Western Section as no construction activities are proposed. Substantial air quality effects in the Eastern Section could occur due to construction air quality emissions exceeding localized air quality standards.</p> <p><i>Operation:</i> Localized air quality effects could be substantial; however, operation of the Program would generally result in long-term net benefits to air quality through reduction of criteria pollutants through a decrease in regional VMT. Substantial GHG benefits are anticipated as operation would reduce regional vehicle trips and VMT, resulting in a reduction of GHG emissions.</p>	<p><i>Construction:</i> Negligible air quality and GHG effects in the Western Section as no construction activities are proposed. Substantial air quality effects in the Eastern Section could occur due to construction air quality emissions exceeding localized air quality standards.</p> <p><i>Operation:</i> Localized air quality effects could be substantial; however, operation of the Program would generally result in long-term net benefits to air quality through reduction of criteria pollutants through a decrease in regional VMT. Substantial GHG benefits are anticipated as operation would reduce regional vehicle trips and VMT, resulting in a reduction of GHG emissions.</p>
Noise and Vibration	<p>No Program-related construction or increase in service would occur; however, freight and intercity train trips would increase in frequency due to regional growth and demand from other projects. Under the No Build Alternative, ambient noise and vibration levels from existing train operations and local traffic would continue. While no Program-related construction or increase in service would occur, rail noise is anticipated to increase within the Program Corridor.</p>	<p><i>Construction:</i> Negligible noise and vibration effects in the Western Section as no construction activities are proposed. Substantial noise effects and moderate vibration effects in the Eastern Section due to construction noise and vibration levels exceeding FTA or local standards at sensitive receptors.</p> <p><i>Operation:</i> Negligible noise and vibration effects associated with continued operation of trains and stations within Western Section. Moderate noise effects within the Eastern Section due to addition of new station locations and new rail infrastructure, which could have an effect on adjacent noise sensitive uses. Negligible vibration effects within the Eastern Section.</p>	<p><i>Construction:</i> Negligible noise and vibration effects in the Western Section as no construction activities are proposed. Substantial noise effects and moderate vibration effects in the Eastern Section due to construction noise and vibration levels exceeding FTA or local standards at sensitive receptors.</p> <p><i>Operation:</i> Negligible noise and vibration effects associated with continued operation of trains and stations within Western Section. Moderate noise effects within the Eastern Section due to addition of new station locations and new rail infrastructure, which could have an effect on adjacent noise sensitive uses. Negligible vibration effects within the Eastern Section.</p>	<p><i>Construction:</i> Negligible noise and vibration effects in the Western Section as no construction activities are proposed. Substantial noise effects and moderate vibration effects in the Eastern Section due to construction noise and vibration levels exceeding FTA or local standards at sensitive receptors.</p> <p><i>Operation:</i> Negligible noise and vibration effects associated with continued operation of trains and stations within Western Section. Moderate noise effects within the Eastern Section due to addition of new station locations and new rail infrastructure, which could have an effect on adjacent noise sensitive uses. Negligible vibration effects within the Eastern Section.</p>

Environmental Topic	No Build Alternative	Build Alternative Option 1	Build Alternative Option 2	Build Alternative Option 3
<p>Jurisdictional Waters and Wetland Resources</p>	<p>No effects on jurisdictional waters and wetland resources are anticipated under the No Build Alternative.</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects in the Eastern Section due to temporary construction activities in proximity to jurisdictional waters and wetlands.</p> <p><i>Operation:</i> Negligible effects in Western Section associated with continued operation of trains and stations within existing ROW. Potentially moderate effects in the Eastern Section associated with maintenance of culverts, bridges, embankments, and station areas.</p> <p><i>Waterbodies:</i> 38 waterbodies</p> <p><i>Wetlands:</i> 355 wetlands (731 acres)</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects in the Eastern Section due to temporary construction activities in proximity to jurisdictional waters and wetlands.</p> <p><i>Operation:</i> Negligible effects in Western Section associated with continued operation of trains and stations within existing ROW. Potentially moderate effects in the Eastern Section associated with maintenance of culverts, bridges, embankments, and station areas.</p> <p><i>Waterbodies:</i> 38 waterbodies</p> <p><i>Wetlands:</i> 353 wetlands (729.78 acres)</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects in the Eastern Section due to temporary construction activities in proximity to jurisdictional waters and wetlands.</p> <p><i>Operation:</i> Negligible effects in Western Section associated with continued operation of trains and stations within existing ROW. Potentially moderate effects in the Eastern Section associated with maintenance of culverts, bridges, embankments, and station areas.</p> <p><i>Waterbodies:</i> 38 waterbodies</p> <p><i>Wetlands:</i> 353 wetlands (729.78 acres)</p>
<p>Biological Resources</p>	<p>No effects on biological resources are anticipated under the No Build Alternative.</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Substantial construction effects within the Eastern Section due to the numerous biological resources within the Program’s potential construction footprint.</p> <p><i>Operation:</i> Negligible effects in Western Section associated with continued operation of trains and stations within existing ROW. Potentially moderate effects in the Eastern Section associated with maintenance activities (e.g., application of pesticides and herbicides, addition of light sources that could disrupt wildlife habitat/movement and increased human activity).</p> <p><i>Sensitive Vegetation Communities:</i> 5 sensitive communities with potential to occur</p> <p><i>Special-Status Plant Species:</i> 22 species with potential to occur</p> <p><i>Special-Status Wildlife Species:</i> 66 species with potential to occur</p> <p><i>Wildlife Movement Corridors:</i> 1 (San Bernardino-San Jacinto Connection)</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Substantial construction effects within the Eastern Section due to the numerous biological resources within the Program’s potential construction footprint.</p> <p><i>Operation:</i> Negligible effects in Western Section associated with continued operation of trains and stations within existing ROW. Potentially moderate effects in the Eastern Section associated with maintenance activities (e.g., application of pesticides and herbicides, addition of light sources that could disrupt wildlife habitat/movement and increased human activity).</p> <p><i>Sensitive Natural Communities:</i> 5 sensitive communities with potential to occur</p> <p><i>Special-Status Plant Species:</i> 22 species with potential to occur</p> <p><i>Special-Status Wildlife Species:</i> 66 species with potential to occur</p> <p><i>Wildlife Movement Corridors:</i> 1 (San Bernardino-San Jacinto Connection)</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Substantial construction effects within the Eastern Section due to the numerous biological resources within the Program’s potential construction footprint.</p> <p><i>Operation:</i> Negligible effects in Western Section associated with continued operation of trains and stations within existing ROW. Potentially moderate effects in the Eastern Section associated with maintenance activities (e.g., application of pesticides and herbicides, addition of light sources that could disrupt wildlife habitat/movement and increased human activity).</p> <p><i>Sensitive Natural Communities:</i> 5 sensitive communities with potential to occur</p> <p><i>Special-Status Plant Species:</i> 22 species with potential to occur</p> <p><i>Special-Status Wildlife Species:</i> 66 species with potential to occur</p> <p><i>Wildlife Movement Corridors:</i> 1 (San Bernardino-San Jacinto Connection)</p>

Environmental Topic	No Build Alternative	Build Alternative Option 1	Build Alternative Option 2	Build Alternative Option 3
Floodplains, Hydrology, and Water Quality	No effects on floodplains, hydrology, or water quality are anticipated under the No Build Alternative.	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects within the Eastern Section on floodplains, hydrology, and water quality would occur as a result of construction activities in proximity to these water resources.</p> <p><i>Operation:</i> Negligible effects in both the Western and Eastern Sections due to compliance with legislation governing impacts on water resources.</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects within the Eastern Section on floodplains, hydrology, and water quality would occur as a result of construction activities in proximity to these water resources.</p> <p><i>Operation:</i> Negligible effects in both the Western and Eastern Sections due to compliance with legislation governing impacts on water resources.</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects within the Eastern Section on floodplains, hydrology, and water quality would occur as a result of construction activities in proximity to these water resources.</p> <p><i>Operation:</i> Negligible effects in both the Western and Eastern Sections due to compliance with legislation governing impacts on water resources.</p>
Geology, Soils, Seismicity, and Paleontological Resources	Because no physical changes associated with the Program would occur, no effects on geology, soils, seismicity, and paleontological and mineral resources are anticipated under the No Build Alternative. However, due to the seismic nature of Southern California, geologic hazards such as seismically induced fault rupture, ground shaking, landslides, and liquefaction may still occur under the No Build Alternative.	<p>Seismic and Geologic Hazards</p> <p><i>Construction.</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects in the Eastern Section due to construction in areas within seismic zones and areas geologically ill-suited (e.g., prone to landslides, underlain by expansive soils, etc.) to railroad infrastructure.</p> <p><i>Operation.</i> Negligible effects in Western Section as no additional infrastructure proposed. Potentially moderate effects in the Eastern Section due to the proposed route alternative traversing a seismically active region.</p> <p>Paleontological Resources</p> <p><i>Construction.</i> Negligible effects in Western Section as no construction activities required. Substantial effects in the Eastern Section due to excavation within paleontologically sensitive areas.</p> <p><i>Operation.</i> Negligible effects as operation in the Western and Eastern Sections would not involve sub-surface excavations.</p> <p>Mineral Resources</p> <p><i>Construction.</i> Negligible effects in Western Section as no construction activities required. Substantial effects in the Eastern Section as land designated for mineral resource extraction could be converted to transportation use.</p> <p><i>Operation.</i> Negligible effects in the Western and Eastern Sections as operation would not involve sub-surface excavations.</p>	<p>Seismic and Geologic Hazards</p> <p><i>Construction.</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects in the Eastern Section due to construction in areas within seismic zones and areas geologically ill-suited (e.g., prone to landslides, underlain by expansive soils, etc.) to railroad infrastructure.</p> <p><i>Operation.</i> Negligible effects in Western Section as no additional infrastructure proposed. Potentially moderate effects in the Eastern Section due to the proposed route alternative traversing a seismically active region.</p> <p>Paleontological Resources</p> <p><i>Construction.</i> Negligible effects in Western Section as no construction activities required. Substantial effects in the Eastern Section due to excavation within paleontologically sensitive areas.</p> <p><i>Operation.</i> Negligible effects as operation in the Western and Eastern Sections would not involve sub-surface excavations.</p> <p>Mineral Resources</p> <p><i>Construction.</i> Negligible effects in Western Section as no construction activities required. Substantial effects in the Eastern Section as land designated for mineral resource extraction could be converted to transportation use.</p> <p><i>Operation.</i> Negligible effects in the Western and Eastern Sections as operation would not involve sub-surface excavations.</p>	<p>Seismic and Geologic Hazards</p> <p><i>Construction.</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects in the Eastern Section due to construction in areas within seismic zones and areas geologically ill-suited (e.g., prone to landslides, underlain by expansive soils, etc.) to railroad infrastructure.</p> <p><i>Operation.</i> Negligible effects in Western Section as no additional infrastructure proposed. Potentially moderate effects in the Eastern Section due to the proposed route alternative traversing a seismically active region.</p> <p>Paleontological Resources</p> <p><i>Construction.</i> Negligible effects in Western Section as no construction activities required. Substantial effects in the Eastern Section due to excavation within paleontologically sensitive areas.</p> <p><i>Operation.</i> Negligible effects as operation in the Western and Eastern Sections would not involve sub-surface excavations.</p> <p>Mineral Resources</p> <p><i>Construction.</i> Negligible effects in Western Section as no construction activities required. Substantial effects in the Eastern Section as land designated for mineral resource extraction could be converted to transportation use.</p> <p><i>Operation.</i> Negligible effects in the Western and Eastern Sections as operation would not involve sub-surface excavations.</p>

Environmental Topic	No Build Alternative	Build Alternative Option 1	Build Alternative Option 2	Build Alternative Option 3
<p>Hazards and Hazardous Materials</p>	<p>Because no physical changes would occur, no effects on hazards or hazardous materials are anticipated under the No Build Alternative.</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects in the Eastern Section due to construction in areas located in proximity to hazardous materials sites, fire hazard severity zones, and airport influence areas.</p> <p><i>Operation:</i> Negligible effects in both the Western and Eastern Sections as any operational use/transport of hazardous materials would be in compliance with state and federal law.</p> <p><i>Number of Hazardous Materials Regulatory Database Listings:</i> 2,282</p> <p><i>Fire Hazard Severity Zones:</i> 4,048.7 acres</p> <p><i>Airports/Airport Influence Areas:</i> 8</p> <p><i>Schools within 0.25 mile:</i> 26</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects in the Eastern Section due to construction in areas located in proximity to hazardous materials sites, fire hazard severity zones, and airport influence areas.</p> <p><i>Operation:</i> Negligible effects in both the Western and Eastern Sections as any operational use/transport of hazardous materials would be in compliance with state and federal law.</p> <p><i>Number of Hazardous Materials Regulatory Database Listings:</i> 2,203</p> <p><i>Fire Hazard Severity Zones:</i> 4,048.7 acres</p> <p><i>Airports/Airport Influence Areas:</i> 7</p> <p><i>Schools within 0.25 mile:</i> 23</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects in the Eastern Section due to construction in areas located in proximity to hazardous materials sites, fire hazard severity zones, and airport influence areas.</p> <p><i>Operation:</i> Negligible effects in both the Western and Eastern Sections as any operational use/transport of hazardous materials would be in compliance with state and federal law.</p> <p><i>Number of Hazardous Materials Regulatory Database Listings:</i> 2,203</p> <p><i>Fire Hazard Severity Zones:</i> 4,048.7 acres</p> <p><i>Airports/Airport Influence Areas:</i> 7</p> <p><i>Schools within 0.25 mile:</i> 23</p>
<p>Public Utilities and Energy</p>	<p>Because no physical changes would occur, no effects on public utilities or solid waste facilities are anticipated under the No Build Alternative.</p> <p>However, projected future growth in the Program Corridor would result in a corresponding increase in traffic and VMT as more cars would be on the roadways. Therefore, traffic congestion is likely to worsen with the No Build Alternative, resulting in air quality effects. Similarly, with the continued trend in increases of VMT within the Program Corridor, energy consumption would likely increase under the No Build Alternative.</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects in the Eastern Section due to conflicts with existing utility infrastructure during construction. Potentially moderate effects pertaining to water and energy use during construction in the Eastern Section as construction of the Program would require consumption of available resources; however, existing supplies would be sufficient.</p> <p><i>Operation:</i> Negligible effects in Western Section as existing tracks would be utilized and maintenance conducted within the existing ROW. Potentially moderate effects in the Eastern Section due to increased demand for water, energy, wastewater treatment, and solid waste disposal.</p> <p><i>Electric transmission lines:</i> 180</p> <p><i>Natural gas pipelines:</i> 6</p> <p><i>Oil/petroleum product pipelines:</i> 7</p> <p><i>Canals/aqueducts:</i> 1</p> <p><i>Landfills in proximity:</i> 27</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects in the Eastern Section due to conflicts with existing utility infrastructure during construction. Potentially moderate effects pertaining to water and energy use during construction in the Eastern Section as construction of the Program would require consumption of available resources; however, existing supplies would be sufficient.</p> <p><i>Operation:</i> Negligible effects in Western Section as existing tracks would be utilized and maintenance conducted within the existing ROW. Potentially moderate effects in the Eastern Section due to increased demand for water, energy, wastewater treatment, and solid waste disposal.</p> <p><i>Electric transmission lines:</i> 174</p> <p><i>Natural gas pipelines:</i> 6</p> <p><i>Oil/petroleum product pipelines:</i> 7</p> <p><i>Canals/aqueducts:</i> 1</p> <p><i>Landfills in proximity:</i> 27</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects in the Eastern Section due to conflicts with existing utility infrastructure during construction. Potentially moderate effects pertaining to water and energy use during construction in the Eastern Section as construction of the Program would require consumption of available resources; however, existing supplies would be sufficient.</p> <p><i>Operation:</i> Negligible effects in Western Section as existing tracks would be utilized and maintenance conducted within the existing ROW. Potentially moderate effects in the Eastern Section due to increased demand for water, energy, wastewater treatment, and solid waste disposal.</p> <p><i>Electric transmission lines:</i> 174</p> <p><i>Natural gas pipelines:</i> 6</p> <p><i>Oil/petroleum product pipelines:</i> 7</p> <p><i>Canals/aqueducts:</i> 1</p> <p><i>Landfills in proximity:</i> 27</p>

Environmental Topic	No Build Alternative	Build Alternative Option 1	Build Alternative Option 2	Build Alternative Option 3
Cultural Resources	<p>Because no physical changes would occur, no effects on cultural resources are anticipated under the No Build Alternative.</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Substantial effects in the Eastern Section as construction activities could result in damage and disturbance of cultural resources, including previously unknown buried cultural resources and/or human remains.</p> <p><i>Operation:</i> Negligible effects in both the Western and Eastern Sections as operational activities would be predominantly located in the railroad ROW with low probability of damaging cultural resources and/or human remains.</p> <p><i>Number of Known Cultural Resources:</i> 384 (117 archaeological sites and 267 built environment resources). Of these 384 known cultural resources, 1 resource is a listed NRHP property, 41 resources are potentially eligible for NRHP or CRHR listing, and 188 resources have not been evaluated for NRHP or CRHR eligibility.</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Substantial effects in the Eastern Section as construction activities could result in damage and disturbance of cultural resources, including previously unknown buried cultural resources and/or human remains.</p> <p><i>Operation:</i> Negligible effects in both the Western and Eastern Sections as operational activities would be predominantly located in the railroad ROW with low probability of damaging cultural resources and/or human remains.</p> <p><i>Number of Known Cultural Resources:</i> 361 (112 archaeological sites and 249 built environment resources). Of these 361 known cultural resources, 1 resource is a listed NRHP property, 36 resources are potentially eligible for NRHP or CRHR listing, and 171 resources have not been evaluated for NRHP or CRHR eligibility.</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Substantial effects in the Eastern Section as construction activities could result in damage and disturbance of cultural resources, including previously unknown buried cultural resources and/or human remains.</p> <p><i>Operation:</i> Negligible effects in both the Western and Eastern Sections as operational activities would be predominantly located in the railroad ROW with low probability of damaging cultural resources and/or human remains.</p> <p><i>Number of Known Cultural Resources:</i> 361 (112 archaeological sites and 249 built environment resources). Of these 361 known cultural resources, 1 resource is a listed NRHP property, 36 resources are potentially eligible for NRHP or CRHR listing, and 171 resources have not been evaluated for NRHP or CRHR eligibility.</p>

Environmental Topic	No Build Alternative	Build Alternative Option 1	Build Alternative Option 2	Build Alternative Option 3
Parklands and Community Services	Because no physical changes would occur, no effects on parklands or community services are anticipated under the No Build Alternative.	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Moderate effects in Eastern Section could result on existing parklands and community facilities if the resources are near where an infrastructure improvement or station is being constructed and/or if parklands would be acquired and demolished to construct the proposed improvements.</p> <p><i>Operation:</i> Negligible effects in Western Section as operation would occur within an existing railroad ROW. Potentially moderate effects in the Eastern Section as new station areas could encourage transit-oriented development and associated increases in population and, in turn, increases in the use of existing parks and community facilities; however, operation of the new railroad infrastructure and stations would not be anticipated to require new or physically altered parklands and community facilities.</p> <p><i>Park/trail:</i> 27</p> <p><i>Place of worship:</i> 90</p> <p><i>Educational facility:</i> 27</p> <p><i>Healthcare facility:</i> 8</p> <p><i>Fire protection facility:</i> 9</p> <p><i>Law enforcement facility:</i> 6</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Moderate effects in Eastern Section could result on existing parklands and community facilities if the resources are near where an infrastructure improvement or station is being constructed and/or if parklands would be acquired and demolished to construct the proposed improvements.</p> <p><i>Operation:</i> Negligible effects in Western Section as operation would occur within an existing railroad ROW. Potentially moderate effects in the Eastern Section as new station areas could encourage transit-oriented development and associated increases in population and, in turn, increases in the use of existing parks and community facilities; however, operation of the new railroad infrastructure and stations would not be anticipated to require new or physically altered parklands and community facilities.</p> <p><i>Park/trail:</i> 25</p> <p><i>Place of worship:</i> 85</p> <p><i>Educational facility:</i> 23</p> <p><i>Healthcare facility:</i> 6</p> <p><i>Fire protection facility:</i> 9</p> <p><i>Law enforcement facility:</i> 6</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Moderate effects in Eastern Section could result on existing parklands and community facilities if the resources are near where an infrastructure improvement or station is being constructed and/or if parklands would be acquired and demolished to construct the proposed improvements.</p> <p><i>Operation:</i> Negligible effects in Western Section as operation would occur within an existing railroad ROW. Potentially moderate effects in the Eastern Section as new station areas could encourage transit-oriented development and associated increases in population and, in turn, increases in the use of existing parks and community facilities; however, operation of the new railroad infrastructure and stations would not be anticipated to require new or physically altered parklands and community facilities.</p> <p><i>Park/trail:</i> 25</p> <p><i>Place of worship:</i> 85</p> <p><i>Educational facility:</i> 23</p> <p><i>Healthcare facility:</i> 6</p> <p><i>Fire protection facility:</i> 9</p> <p><i>Law enforcement facility:</i> 6</p>

Environmental Topic	No Build Alternative	Build Alternative Option 1	Build Alternative Option 2	Build Alternative Option 3
Safety and Security	Because no physical changes would occur, no effects on safety and security are anticipated under the No Build Alternative.	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Potentially moderate in the Eastern Section effects associated with construction as temporary closure of lanes, sidewalks, bicycle lanes and routes, driveways, streets, and freeway lanes could result in safety hazards during construction.</p> <p><i>Operation:</i> Negligible effects in the Western Section as the addition of two daily round trips would not change the existing safety and security protocols for passengers, transit employees, and the public in or near the existing passenger rail system or station facilities. Potentially moderate effects in the Eastern Section due to implementation of new infrastructure requiring new rail safety equipment and protocols.</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects in the Eastern Section associated with construction as temporary closure of lanes, sidewalks, bicycle lanes and routes, driveways, streets, and freeway lanes could result in safety hazards during construction.</p> <p><i>Operation:</i> Negligible effects in the Western Section as the addition of two daily round trips would not change the existing safety and security protocols for passengers, transit employees, and the public in or near the existing passenger rail system or station facilities. Potentially moderate effects in the Eastern Section due to implementation of new infrastructure requiring new rail safety equipment and protocols.</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects in the Eastern Section associated with construction as temporary closure of lanes, sidewalks, bicycle lanes and routes, driveways, streets, and freeway lanes could result in safety hazards during construction.</p> <p><i>Operation:</i> Negligible effects in the Western Section as the addition of two daily round trips would not change the existing safety and security protocols for passengers, transit employees, and the public in or near the existing passenger rail system or station facilities. Potentially moderate effects in the Eastern Section due to implementation of new infrastructure requiring new rail safety equipment and protocols.</p>

Notes:

CRHR=California Register of Historical Resources; FTA=Federal Transit Administration; GHG=greenhouse gas; I=Interstate; NRHP=National Register of Historic Places; ROW=right-of-way; SR=State Route; VMT=vehicle miles traveled

ES.1.6 Avoidance, Minimization, and Mitigation Strategies

The avoidance, minimization, and mitigation strategies described in this Tier 1/Program-level EIS/EIR are not intended to be exhaustive for site-specific impacts. Each resource analysis in Chapter 3, Environmental Analysis, Consequences, and Mitigation, includes a list of avoidance, minimization, and mitigation strategies that would be considered and further developed at the Tier 2/Project-level analysis. Strategies include conceptual avoidance and minimization measures for the next phase of design, suggestions for programmatic agreements, and descriptions of options for replacing or reestablishing the affected resources.

ES.1.7 Public Review of Tier 1/Program Draft EIS/EIR

This Draft Tier 1/Program EIS/EIR is being made available to the public for review and comment and distributed to agencies and stakeholders with jurisdiction, expertise, or interest in the issues involved in the Tier 1/Program Draft EIS/EIR document.

ES.1.7.1 Document Availability

In accordance with Governor Newsom’s Executive Order (EO) N-54-20 in effect during the COVID-19 public health emergency, the requirement to provide general public access to physical copies of CEQA notices and public review documents has been suspended until further notice. Instead, access to electronic versions of the CEQA notices and documents is required. The Draft Tier 1/Program EIS/EIR with technical appendices is available for review online on RCTC’s website (<https://www.rctc.org/projects/coachella-valley-san-gorgonio-pass-corridor-rail-corridor-service-project/>) and FRA’s website (<https://railroads.dot.gov/environment/environmental-reviews/coachella-valley-san-gorgonio-pass-corridor-investment-plan>).

Requests for hard copies of the Draft Tier 1/Program EIS/EIR with technical appendices may be sent to:

Riverside County Transportation Commission

Sheldon Peterson, Rail Manager

P.O. Box 12008

Riverside, California 92502-2208

or via email to cvrail@rctc.org

Hard copies of the Draft Tier 1/Program EIS/EIR Executive Summary and CD copies of the entire Draft Tier 1/Program EIS/EIR with accompanying technical appendices will also be available for public view at the following locations (subject to library location hours and COVID-19 procedures):

<p>Los Angeles Union Station/Metro Library and Archive One Gateway Plaza 15th Floor Los Angeles, California 90012</p> <p>(Hard copy of the Draft EIS/EIR and appendices available in English and hard copy of Executive Summary available in English and Spanish)</p>	<p>Fullerton Public Library 353 W Commonwealth Avenue Fullerton, California 92832</p> <p>(Hard copy of Executive Summary available in English and Spanish)</p>	<p>Arlington Library 9556 Magnolia Avenue Riverside, California 92503</p> <p>(Hard copy of Executive Summary available in English and Spanish)</p>
<p>Riverside County Transportation Commission 4080 Lemon Street Riverside, California 92501</p> <p>(Hard copy of the Draft EIS/EIR and appendices available in English and hard copy of Executive Summary available in English and Spanish)</p>	<p>Colton Public Library 656 N 9th Street Colton, California 92324</p> <p>(Hard copy of Executive Summary available in English and Spanish)</p>	<p>Loma Linda Branch Library 25581 Barton Road Loma Linda, California 92354</p> <p>(Hard copy of Executive Summary available in English and Spanish)</p>
<p>A.K. Smiley Public Library 125 W. Vine Street Redlands, California 92373</p> <p>(Hard copy of Executive Summary available in English and Spanish)</p>	<p>Beaumont Library 125 E. Eighth Street Beaumont, California 92223</p> <p>(Hard copy of Executive Summary available in English and Spanish)</p>	<p>Banning Public Library 21 W. Nicolet Street Banning, California 92220</p> <p>(Hard copy of Executive Summary available in English and Spanish)</p>
<p>Palm Springs Public Library 300 S. Sunrise Way Palm Springs, California 92262</p> <p>(Hard copy of Executive Summary available in English and Spanish)</p>	<p>Riverside County Indio Branch Library 200 Civic Center Mall Indio, California 92201</p> <p>(Hard copy of Executive Summary available in English and Spanish)</p>	<p>Riverside County Coachella Branch Library 1500 6th Street Coachella, California 92236</p> <p>(Hard copy of Executive Summary available in English and Spanish)</p>

ES.1.7.2 Providing Comments on the Tier 1/Program Draft EIS/EIR

Public agencies and the public are invited to comment on the scope and content of the environmental information included in the Draft Tier 1/Program EIS/EIR. FRA, Caltrans, and RCTC will make the Draft Tier 1/Program EIS/EIR available for at least 45 days to allow for public review and comment. The comment period for the Draft Tier 1/Program EIS/EIR extends from May 21, 2021 to July 6, 2021.

Provide your written comments, including specific statutory responsibilities of your agency, as applicable. Written comments on the content of the Draft Tier 1/Program EIS/EIR should be submitted no later than July 6, 2021. The document can be viewed at the websites noted above and <https://www.regulations.gov/docket/FRA-2021-0048>. Comments can be shared directly with FRA by visiting the regulations.gov link (above) or by searching regulations.gov for Docket Number (FRA-2021-0048). All electronic comments should be submitted via regulations.gov.

Written comments should be sent via United States (U.S.) mail to:

Federal Railroad Administration
Amanda Ciampolillo, Environmental Protection Specialist
1200 New Jersey Avenue SE
Washington, DC 20590

Comments should include “Coachella Valley – San Gorgonio Pass Rail Corridor Service Program – Draft Tier 1/Program EIS/EIR Comments” in the subject line and the name of a contact person in your organization, if applicable.

ES.1.7.3 Public Hearings

The purpose of the public hearings is to explain the Program and the Draft Tier 1/Program EIS/EIR evaluation. FRA, Caltrans, and RCTC have scheduled two public hearings as an important component of the NEPA and CEQA process. The virtual public hearings for the Program are scheduled as follows:

June 22, 2021, 06:00 p.m.

June 26, 2021, 09:00 a.m.

Public hearing materials and information will be available prior to the public hearings on the RCTC website:

<http://www.rctc.org/projects/coachella-valley-san-gorgonio-pass-corridor-rail-corridor-service-project/>.

The format of the public hearing will consist of a Program overview. Following presentation of the Program, meeting attendees will be able to virtually participate and are encouraged to provide questions and comments on the Program. Comments on the Draft Tier 1/Program EIS/EIR from the public during the public hearing may be submitted virtually via court reporter. Spanish language translators will be present during the public hearings. People requesting Americans with Disabilities Act accommodations or additional translator services are encouraged to contact RCTC at (909) 627-2974 at least 72 hours in advance of the meetings.

1 Program Purpose and Need

1.1 Introduction and Lead Agencies

As part of its mission to provide a safe, efficient, cost-effective transportation system, the Federal Railroad Administration (FRA), California Department of Transportation (Caltrans) Division of Rail and Mass Transportation, and Riverside County Transportation Commission (RCTC) have been studying ways to serve commuter and intercity travel needs and enhance travel opportunities within Los Angeles, Orange, Riverside, and San Bernardino Counties. Statewide and regional transportation planning efforts undertaken from 1991 to 2016 have recommended implementing passenger rail service to add travel capacity to what highways already provide. For this reason, FRA, Caltrans, and RCTC are studying passenger rail service options between Los Angeles Union Station (LAUS) in Los Angeles, California and the City of Coachella to provide more travel choices in the 144-mile-long Coachella Valley-San Gorgonio Pass Rail Corridor (Program Corridor).

The Program Corridor, which connects the Los Angeles metropolitan area with the Coachella Valley through the San Gorgonio Pass, currently has no daily intercity passenger rail service. The proposed implementation of intercity passenger rail service in the Program Corridor, including the planning and construction of rail infrastructure improvements required to establish the service, are collectively known as the Coachella Valley-San Gorgonio Pass Rail Corridor Service Program (Program).¹

FRA and Caltrans are the joint lead agencies for the environmental review under the National Environmental Policy Act (NEPA), and RCTC is the lead agency under the California Environmental Quality Act (CEQA). FRA, Caltrans, and RCTC have prepared this Tier 1/Program Environmental Impact Statement (EIS)/Environmental Impact Report (EIR) in compliance with:

- NEPA (42 United States Code [USC] Section 4321, et seq.) and the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations [CFR] Parts 1500–1508)
- CEQA (California Public Resource Code [PRC], Section 21000, et seq.)
- California Code of Regulations (CCR), Title 14, Division 6, Chapter 3 Sections 15000-15387
- FRA's Procedures for Considering Environmental Impacts (64 *Federal Register* [FR] 28545, May 26, 1999), and

¹ For California Environmental Quality Act (CEQA) purposes, this is the proposed Project.

- 23 USC Section 139.

1.1.1 Cooperating and Participating Agencies

There are no cooperating agencies for the environmental review of the Program. The Federal Transit Administration (FTA), Southern California Regional Rail Authority (SCRRA), and Southern California Association of Governments (SCAG) are participating agencies for the Program.

1.2 Intended Uses of the Tier 1/Program EIS/EIR

FRA, Caltrans, and RCTC are using a tiered NEPA/CEQA process to complete the environmental review of the Program, under 40 CFR Part 1508.28 and CEQA Guideline Sections 15168 and 15170. Tiering is a staged environmental review process often applied to environmental review for complex transportation projects. This Tier 1/Program EIS/EIR complies with NEPA and CEQA, which requires that federal and state agencies analyze a range of reasonable alternatives in an EIS (42 USC Section 4332(c)(iii)) and EIR (CEQA Guidelines Section 15126.6(a)).

To meet this requirement, this Tier 1/Program EIS/EIR evaluates potential environmental impacts of the Build Alternative Options broadly within the Program Corridor, as shown on Figure 2-4 through Figure 2-6. The Program Corridor provides a flexible regional context for the best location of a passenger rail system while providing opportunities for the Build Alternative Options within the Program Corridor to account for engineering and environmental constraints, as well as public input when Tier 2/Project-level studies examine the Program Corridor in greater detail.

Additional public input and more refined engineering studies would be undertaken as part of NEPA/CEQA Tier 2/Project-level review. The Tier 2/Project-level NEPA/CEQA review would identify and analyze the potential impacts of the Build Alternative Option selected at the end of the Tier 1/Program EIS/EIR process.

1.3 Organization of the Tier 1/Program EIS/EIR

This Tier 1/Program EIS/EIR is comprised of ten chapters with supporting appendices. The Program Purpose and Need is outlined in this chapter. The definition of alternatives considered, along with those not carried forward for further environmental evaluation, and the No Build Alternative and Build Alternative Options are discussed in Chapter 2. Chapter 3 provides an environmental evaluation organized by environmental issue area. Chapter 4 provides an evaluation of potential effects on environmental justice (EJ) populations. Chapter 5 provides an evaluation of potential effects on resources protected by Section 4(f) of the Department of Transportation Act and Section 6(f) of the Land and Water Conservation Fund (LWCF). Chapter 6 provides a discussion of the other CEQA

statutory considerations. Chapter 7 provides a summary and evaluation of the alternatives and Chapter 8 outlines the public and agency outreach efforts by FRA, Caltrans, and RCTC. Chapters 9 and 10 include the references and list of preparers.

Appendices to the Tier 1/Program EIS/EIR include public outreach and notification materials and the eight technical studies/memoranda used in support of the environmental evaluation.

1.4 Program Background, Location, and Overview

1.4.1 Program Background

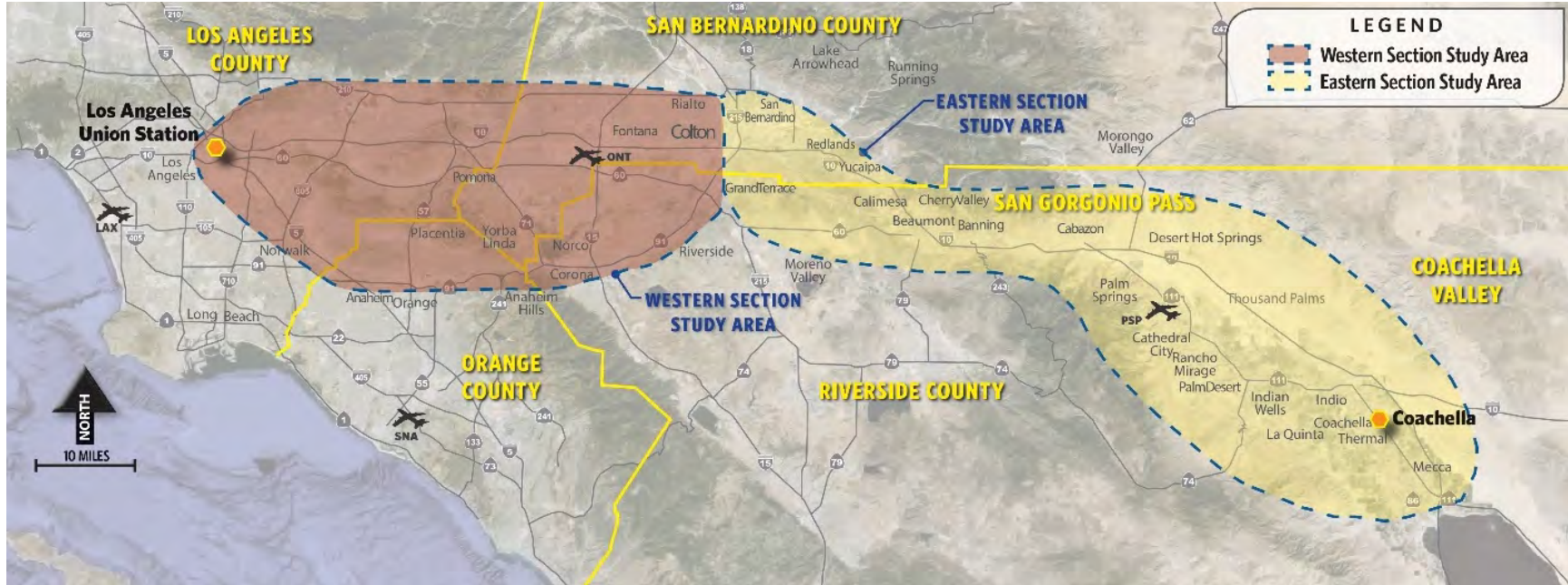
This Tier 1/Program EIS/EIR is preceded by several years of preliminary Program development activities. In 1991, RCTC completed the first in a series of studies evaluating the feasibility of operating one or two daily intercity passenger rail round trips between Los Angeles and Indio. From 1991 to 2013, RCTC completed additional feasibility studies on the Corridor. In July 2016, RCTC, in coordination with Caltrans and FRA, prepared and completed the 2016 Alternatives Analysis (AA) Report (summarized in Chapter 2 of this Tier 1/Program EIS/EIR) that evaluated a reasonable range of alternatives for implementation of daily intercity passenger rail service between Los Angeles and Indio. The purpose of the 2016 AA Report was to identify a reasonable range of preliminary alternative(s) that could be evaluated in a subsequent Service Development Plan (SDP) and Tier 1/Program EIS/EIR.

On October 11, 2016, the Notice of Intent (NOI)/Notice of Preparation (NOP) was issued for the Program (Appendix A of this Tier 1/Program EIS/EIR). The NOI indicated the Tier 1/Program EIS/EIR would include a programmatic environmental evaluation for provision of “intercity passenger rail service between the Cities of Los Angeles and Indio, California also known as the Coachella Valley-San Gorgonio Pass Corridor.” Subsequent to the close of the formal Tier 1/Program EIS/EIR scoping period, comments received from agencies, other stakeholders, and the public were assessed and incorporated into the SDP and Tier 1/Program EIS/EIR. Subsequent to issuance of the NOI/NOP, FRA, Caltrans, and RCTC elected to carry two eastern terminus service options into the Tier 1/Program EIS/EIR: one that retained the originally proposed eastern terminus at Indio and one that extends the Program Corridor eastward for approximately 3 miles beyond Indio to Coachella, with station stops in both cities.

1.4.2 Program Location and Alternatives Analysis Study Area

The Program Corridor extends from a western terminus at LAUS to an eastern terminus in the City of Coachella and consists of two sections: the Western Section and the Eastern Section. The boundary between Western and Eastern Sections is in the City of Colton, at the intersection of existing railroad lines owned by Union Pacific Railroad (UP) and BNSF. The study areas used to identify alternative(s) in the 2016 AA Report are shown on Figure 1-1.

Figure 1-1. Alternatives Analysis Study Area (Western and Eastern Sections)



Source: RCTC 2016

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1.4.3 Program Overview

Passenger train frequencies proposed as part of the Program would consist of two daily round-trip intercity passenger trains operating the entire length of the Program Corridor between Los Angeles and the Cities of Indio or Coachella, with one morning departure and one afternoon departure from each end of the Program Corridor.

The proposed western terminus is LAUS, which is located in downtown Los Angeles and is the hub station for Amtrak's intercity and long-distance passenger rail services and much of Los Angeles's Metrolink commuter rail service. The station is also served by Los Angeles County Metropolitan Transportation Authority's (Metro) heavy rail and light rail rapid-transit system, Metro's bus system, other municipal bus operators, and a direct link to Los Angeles International Airport via the FlyAway Express Bus. LAUS is also a proposed station for the California high-speed rail system.

As described in Section 1.4.1, there are two proposed eastern terminus options: one in the City of Indio and one in the City of Coachella. Both proposed eastern terminus options would require construction of a new station, as neither the City of Indio nor the City of Coachella has existing stations to accommodate the proposed service.

1.5 Program Purpose and Objectives

The Program's Purpose is to implement a safe, reliable, and convenient intercity passenger rail service in the Program Corridor with the capability to meet the future mobility needs of residents, businesses, and visitors and meet the following objectives:

1. Provides travelers between the Los Angeles Basin and the Coachella Valley with a public transportation service that offers more convenient, reliable, and competitive trip times, better station access, and more frequency than currently available public transportation services
2. Provides travelers between the Los Angeles Basin and the Coachella Valley with an alternative to driving that offers reliable travel schedules
3. Provides travelers between the Los Angeles Basin and the Coachella Valley with an affordable transportation service
4. Serves a range of trip purposes traveling between the Los Angeles Basin and the Coachella Valley, particularly including business and personal trips
5. Improves regional travel opportunities between the Los Angeles Basin and the Coachella Valley for individuals without private vehicles
6. Serves the expected population growth in the Los Angeles Basin and the Coachella Valley

7. Assists regional agencies in meeting air pollution and greenhouse gas (GHG) emission reduction targets as mandated in state and federal regulations

The frequency of the Program’s proposed passenger rail service was established as two daily round trips based on a ridership forecasting model service optimization analysis, which found that two round trips per day would attract the greatest number of riders per train while providing an opportunity for passengers to make a limited round trip in 1 day (RCTC 2016). The Program could result in scheduled one-way travel times between Los Angeles and Coachella of approximately 180 to 200 minutes.

The passenger rail service would be designed to achieve an endpoint on-time performance of 90 percent and an all-stations on time performance of 90 percent, in compliance with on-time performance metrics established by FRA under the Passenger Rail Investment and Improvement Act of 2008, as well as the Uniform Performance Standards for intercity passenger trains established by the California State Transportation Agency on July 1, 2014. Under these metrics, intercity passenger trains in the Program Corridor would have an endpoint on-time performance variance (late tolerance) of 10 minutes and an all-stations on-time performance variance of 15 minutes.

1.6 Program Need

The Program is needed to address the absence of effective transportation alternatives to personal automobile travel between coastal regions of Southern California (e.g., Los Angeles and Orange Counties) and cities in the Inland Empire (e.g., City of Riverside) and the Coachella Valley (e.g., Cities of Coachella, Indio, Palm Springs), the projected increase in travel demand in the Program Corridor resulting from population and employment growth, and the increasing unreliability of existing transportation systems within the Program Corridor.

Based on a market analysis of the Program Corridor (RCTC 2016), the two primary transportation and mobility challenges include the following:

1. For interregional travel between the Los Angeles Basin and the Coachella Valley, travelers are required to drive through Interstate (I) 10 through the San Gorgonio Pass. There are limited public transportation options; therefore, people who cannot afford to own and operate a private vehicle, or choose not to, have limited ability to travel between the regions, and people who might prefer not to drive do not have a viable alternative. The lack of available transportation options leaves the Program Corridor underserved, yet travel demand is expected to increase in the future.

2. Congested highway conditions in the Los Angeles Basin cause delays and highway travel unreliability for longer-distance corridor driving trips. Emergency closures of I-10 through San Gorgonio Pass further undermine the reliability of the Program Corridor's transportation system. Future growth will result in more congestion and even longer travel times, causing more highway travel unreliability; thus, driving is an increasingly unattractive and inconvenient mode of travel through the Program Corridor.

According to the market analysis, the Program Corridor currently faces substantial mobility challenges that are likely to continue. Based on population and travel forecasts, as well as the amount of available open land within the Program Corridor, population, employment, and tourism activity is expected to continue to grow in the future; however, opportunities to increase the carrying capacity of the region's roadway network are limited.

1.6.1 Limited and Constrained Travel Options

While the Program Corridor is served by a transportation system that includes air, highway, transit, and rail modes, few of these alternatives provide regular intercity transportation within the Program Corridor between the Coachella Valley, Inland Empire, and coastal regions of Southern California. In addition, the existing transportation system is constrained due to the limited travel alternatives to driving a private vehicle. Currently, the only existing passenger rail service in the Program Corridor that provides service from Los Angeles to Coachella Valley is Amtrak's Sunset Limited, a long-distance train that operates 3 days per week in each direction, connecting Los Angeles, Tucson, San Antonio, and New Orleans. Amtrak makes intermediate stops at Pomona, Ontario, and Palm Springs; however, its arrival and departure is scheduled during the middle of the night. Air travel access is also a limited option for many residents of the Los Angeles Basin because of the distance from residences to major airports and the infrequency and high cost of flights between Los Angeles and the Coachella Valley.

As a result, virtually all of the intercity travel between these regions is by personal automobiles, primarily on I-10 through the San Gorgonio Pass. However, even travel by personal automobile is constrained by recurring highway congestion and the lack of alternative routes to I-10.

Limited Alternatives to Personal Automobile Travel

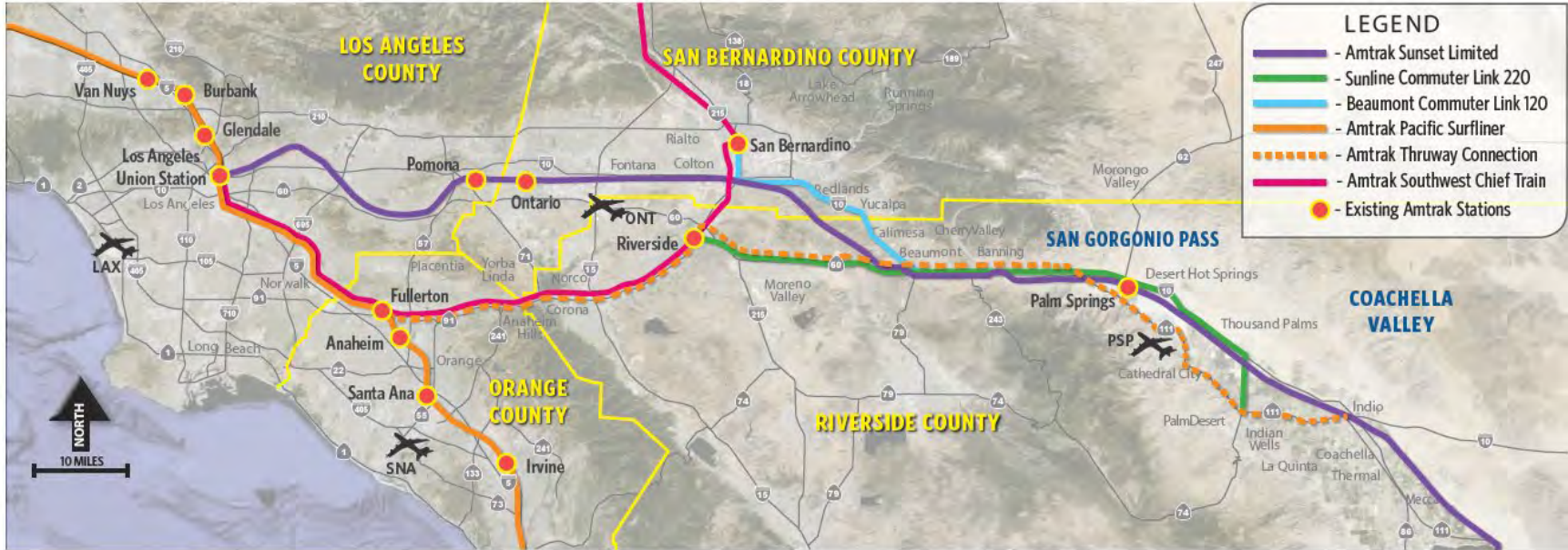
Travel opportunities in the Program Corridor between regions by rail, bus, or air are limited and consist of the following services:

- Amtrak Sunset Limited long-distance passenger train, stopping in Los Angeles, Pomona, Ontario, and Palm Springs with three trips per week each way in the middle of the night

- Amtrak Southwest Chief long-distance passenger train, stopping in Los Angeles, Fullerton, Riverside, and San Bernardino with daily service
- Amtrak Thruway bus service connects the Coachella Valley to Amtrak Pacific Surfliner trains at Fullerton, consisting of one daily trip each way between Fullerton and the Palm Springs Airport (making intermediate stops in Riverside, Cabazon, and downtown Palm Springs) and one daily trip each way between Fullerton and Indio (making intermediate stops at Riverside, Cabazon, downtown Palm Springs, Palm Springs Airport, Palm Desert, and La Quinta)
- Amtrak Thruway bus service connects Indio to Amtrak San Joaquin trains at Bakersfield, consisting of two daily trips each way (making intermediate stops at La Crescenta, Pasadena, Claremont, Ontario, Riverside, San Bernardino, Cabazon, downtown Palm Springs, Palm Springs Airport, Palm Desert, and La Quinta)
- SunLine Route 220 commuter bus service with two weekday peak trips each way between Riverside and the Coachella Valley
- Beaumont Commuter Link 120 bus service, with seven weekday round trips between the San Bernardino Metrolink Station, Loma Linda, and Beaumont
- Greyhound private intercity bus service, with seven daily trips between Los Angeles and the Coachella Valley
- Metrolink commuter rail service operating:
 - One route daily from Los Angeles to Riverside via Fullerton, with nine weekday one-way trips (five eastbound, four westbound) and four weekend one-way trips (two each way)
 - One route weekdays from Los Angeles to Riverside via Pomona, with 12 weekday one-way trips (six each way)
 - One route daily from San Bernardino and Riverside to Laguna Niguel and Oceanside, with 8 weekday one-way trips (four each way) to/from San Bernardino and 16 weekday one-way trips (eight each way) to/from Riverside, as well as 4 weekend one-way trips (two each way) to/from San Bernardino
- Scheduled air passenger service connecting the Los Angeles Basin with the Coachella Valley provided through daily flights (ranging from 9 to 13.5 daily flights at different times of the year) between Los Angeles International Airport and Palm Springs International Airport

Figure 1-2 and Figure 1-3 illustrate the existing intercity passenger rail and bus services connecting the Coachella Valley and Los Angeles Basin, as well as the cities connected by Greyhound service.

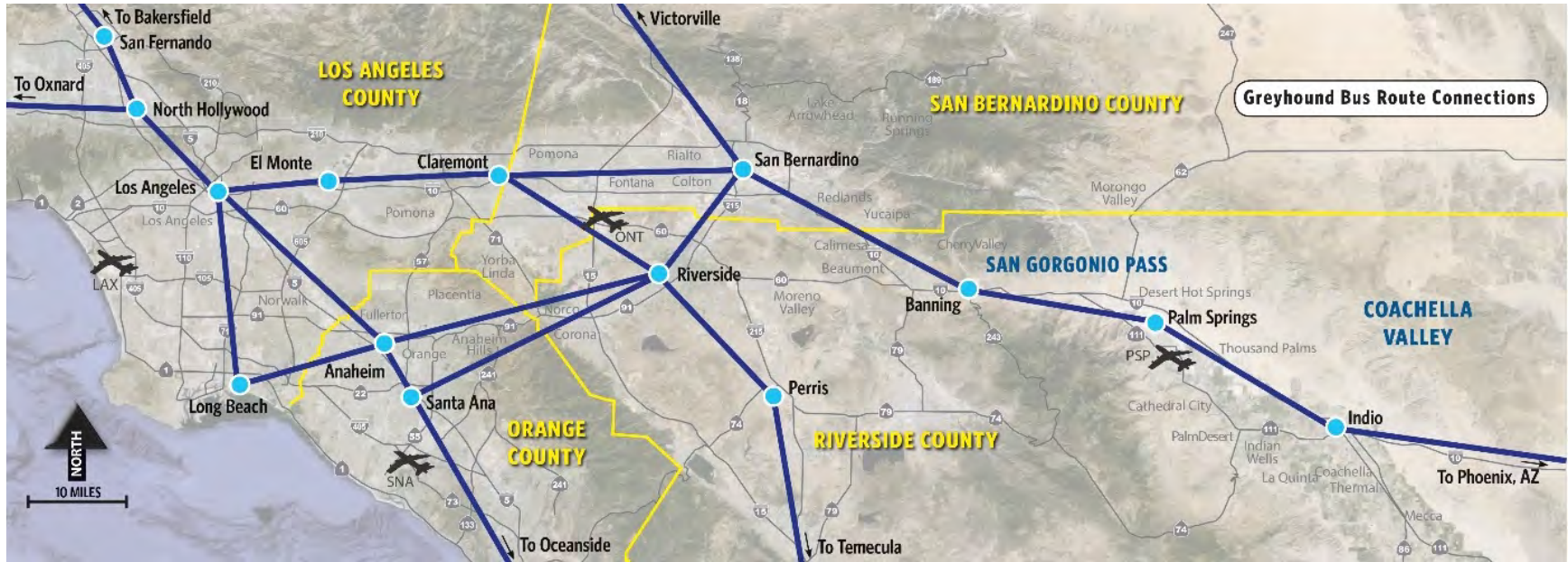
Figure 1-2. Existing Intercity Rail and Regional Bus Services Connecting the Los Angeles Basin and Coachella Valley



Source: RCTC 2016

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Figure 1-3. Existing Intercity Bus Service Connecting the Los Angeles Basin and Coachella Valley



Source: RCTC 2016

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Existing and Projected Highway Volumes

The Los Angeles Basin and Coachella Valley are separated by major mountain ranges, and virtually all travel between these geographic areas flows through the San Gorgonio Pass, the only direct route between the two areas. I-10 is the only roadway that traverses the San Gorgonio Pass to connect the Los Angeles Basin with the Coachella Valley and is a major artery for transcontinental freight and passenger transportation. I-10 is the southernmost transcontinental highway in the United States (U.S.) Interstate Highway System and stretches from Santa Monica, California on the Pacific Coast to Jacksonville, Florida near the Atlantic Coast. Connecting state highways diverge from I-10 on each side of the pass for travel westward to Los Angeles or eastward to the Coachella Valley. Other local roads through the mountains only carry a small volume of travelers. Figure 1-4 shows the key regional highways serving the Program Corridor and the lack of alternate highway options to I-10 through the San Gorgonio Pass area.

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Figure 1-4. Existing Key Program Corridor Highways Connecting the Los Angeles Basin and Coachella Valley



Source: RCTC 2016

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On a typical weekday, 130,000 people travel through the San Gorgonio Pass (SCAG 2016); over half (55 percent) of these trips have their eastern terminus in the Coachella Valley. The remaining trips have their eastern terminus in the high desert areas of Yucca Valley and Twentynine Palms (14 percent) or travel east to Blythe and Phoenix (27 percent) or south to the Imperial Valley (4 percent) (Caltrans 2012). The region's existing travel market is substantial, with more than 58 million daily person trips (individual travel trips that occur daily) in the four-county area (Los Angeles, San Bernardino, Riverside, and Orange Counties) with projections to increase 47 percent by 2035 (SCAG 2016).

Personal trips increase these travel flows on weekends, with 45 percent more trips being made through the San Gorgonio Pass on a typical Friday than a typical midweek day. This number increases when major festivals and events are held. During the highest travel weekend of the year, which in 2014 included both Easter and the Coachella Music Festival, 125 percent more trips traveled through the San Gorgonio Pass than on a typical midweek day (SCAG 2016).

Chronic Highway Congestion

Population growth is expected to increase demand on already constrained highways resulting in increased congestion. Figure 1-5 illustrates the areas of existing weekday highway congestion (in either the eastbound or westbound directions) on I-10 and other regional freeways. Daily traffic volumes regularly exceed the design capacity of I-10 in certain locations.

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Figure 1-5. Existing Areas of Recurring Weekday Road Congestion within Program Corridor



Source: RCTC 2016

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Congestion primarily occurs in the Western Section of the Program Corridor, while the Eastern Section is relatively congestion-free unless an incident closes highway lanes. Data obtained from Caltrans Performance Measurement System (PeMS) analyzing highway congestion in the Program Corridor for a period from April 20, 2014, through May 14, 2014, indicate that eastbound I-10 has congested areas between Alhambra and Pomona during typical weekday afternoons, with longer durations and slower speeds on Friday afternoons. The Eastern Section of the Program Corridor has minimal areas with reduced speeds throughout the day on typical weekdays and Fridays. Saturdays show some congested areas in the Western Section of the Program Corridor and no congestion in the Eastern Section. In the Western Section of the Program Corridor, westbound I-10 exhibits typical commute congestion between Pomona and Alhambra in the morning hours, as well as periodic slowing in several areas at different times throughout the afternoon.

Much of State Route (SR) 60 is congested from East Los Angeles to Rowland Heights, from Pomona to East Ontario, and from Rubidoux to Moreno Valley on normal weekday afternoons. On normal Fridays, the congestion through these areas intensifies. The eastbound SR 91 is congested for much of its length from North Long Beach to Anaheim and from Orange to Riverside during most of the afternoon on normal weekdays and Fridays (Caltrans 2014).

Table 1-1 shows the wide variance in typical driving times between Coachella and four cities in the Los Angeles Basin: Los Angeles, Fullerton, Chino, and Claremont. These cities are sample locations near the Program Corridor's three key highways: I-10, SR 60, and SR 91. The data indicate substantial variability in travel times depending on day of week, time of day, and direction of travel. Data was obtained from three sources: Caltrans PeMS, Google Maps, and TomTom. Caltrans PeMS collects traffic data from more than 39,000 detectors across California and archives the information for 10 years. Google Maps calculates driving times based on a variety of data including official and recommended speed limits, historical average speed data, actual travel times from previous users, and real-time traffic information. TomTom operates a database of more than 9 trillion anonymously collected data points that allow the software to predict driving behavior across the road network.

Table 1-1. Existing Typical Driving Times for Selected Trips within Program Corridor

Origin	Destination	Source	Weekday AM Peak (7:00 a.m.) (Minutes)	Weekday PM Peak (5:00 p.m.) (Minutes)	Friday AM Peak (7:00 a.m.) (Minutes)	Friday PM Peak (5:00 p.m.) (Minutes)	Saturday Midday (Noon) (Minutes)
Los Angeles	Indio	PeMS	114	139	112	165	119
Los Angeles	Indio	Google Maps	120-150	120-200	120-150	120-200	120-150

Origin	Destination	Source	Weekday AM Peak (7:00 a.m.) (Minutes)	Weekday PM Peak (5:00 p.m.) (Minutes)	Friday AM Peak (7:00 a.m.) (Minutes)	Friday PM Peak (5:00 p.m.) (Minutes)	Saturday Midday (Noon) (Minutes)
Los Angeles	Indio	TomTom	120	142	120	146	118
Indio	Los Angeles	PeMS	141	114	130	119	116
Indio	Los Angeles	Google Maps	120-200	120-150	120-160	120-150	120-160
Indio	Los Angeles	TomTom	127	120	121	121	117
Fullerton	Indio	PeMS	89	110	90	116	98
Fullerton	Indio	Google Maps	110-140	110-180	110-130	110-190	110-130
Fullerton	Indio	TomTom	112	128	112	130	110
Indio	Fullerton	PeMS	114	94	124	95	103
Indio	Fullerton	Google Maps	110-160	110-130	110-140	110-130	110-140
Indio	Fullerton	TomTom	116	113	112	113	109
Chino	Indio	PeMS	75	81	75	85	77
Chino	Indio	Google Maps	85-110	85-150	85-110	85-150	85-110
Chino	Indio	TomTom	89	100	90	102	88
Indio	Chino	PeMS	82	76	80	76	76
Indio	Chino	Google Maps	85-120	85-110	85-110	85-110	85-110
Indio	Chino	TomTom	93	90	91	91	87
Claremont	Indio	PeMS	85	88	84	96	85

Origin	Destination	Source	Weekday AM Peak (7:00 a.m.) (Minutes)	Weekday PM Peak (5:00 p.m.) (Minutes)	Friday AM Peak (7:00 a.m.) (Minutes)	Friday PM Peak (5:00 p.m.) (Minutes)	Saturday Midday (Noon) (Minutes)
Claremont	Indio	Google Maps	90-110	90-140	90-110	90-150	90-110
Claremont	Indio	TomTom	92	99	92	104	99
Indio	Claremont	PeMS	89	86	85	88	84
Indio	Claremont	Google Maps	90-120	90-110	90-110	90-110	90-110
Indio	Claremont	TomTom	94	93	92	93	99

Source: RCTC 2016

Notes:

PeMS=performance measurement system

Existing travel times using rail and transit can be even longer than highway travel because the trip is indirect, involves intermediate stops, and may require mode transfers. Table 1-2 illustrates each existing service’s current travel time between Los Angeles and the Coachella Valley/San Gorgonio Pass area. Trip times were calculated assuming that Metrolink service is used for the portion of the SunLine and Beaumont trips between downtown Los Angeles and the respective eastern bus route terminus.

Table 1-2. Existing Travel Times Using Rail and Transit Connecting the Los Angeles Basin and Coachella Valley

Rail/Transit Line	Western Terminus	Eastern Terminus	Travel Time (Minutes)
Sunset Limited	Los Angeles	Palm Springs	156
Amtrak Thruway	Los Angeles	Indio	240
SunLine Commuter Link 220 + Metrolink	Los Angeles	Palm Desert	234
Beaumont Commuter Link 120 + Metrolink	Los Angeles	Beaumont	145

Rail/Transit Line	Western Terminus	Eastern Terminus	Travel Time (Minutes)
Greyhound	Los Angeles	Indio	240

Source: RCTC 2016

Notes:

The SunLine + Metrolink and Beaumont + Metrolink travel times include transfer and waiting time.

The wide variations of highway travel times and travel unreliability caused by highway congestion require travelers to allow for extra travel time to ensure they will arrive at their destinations on time.

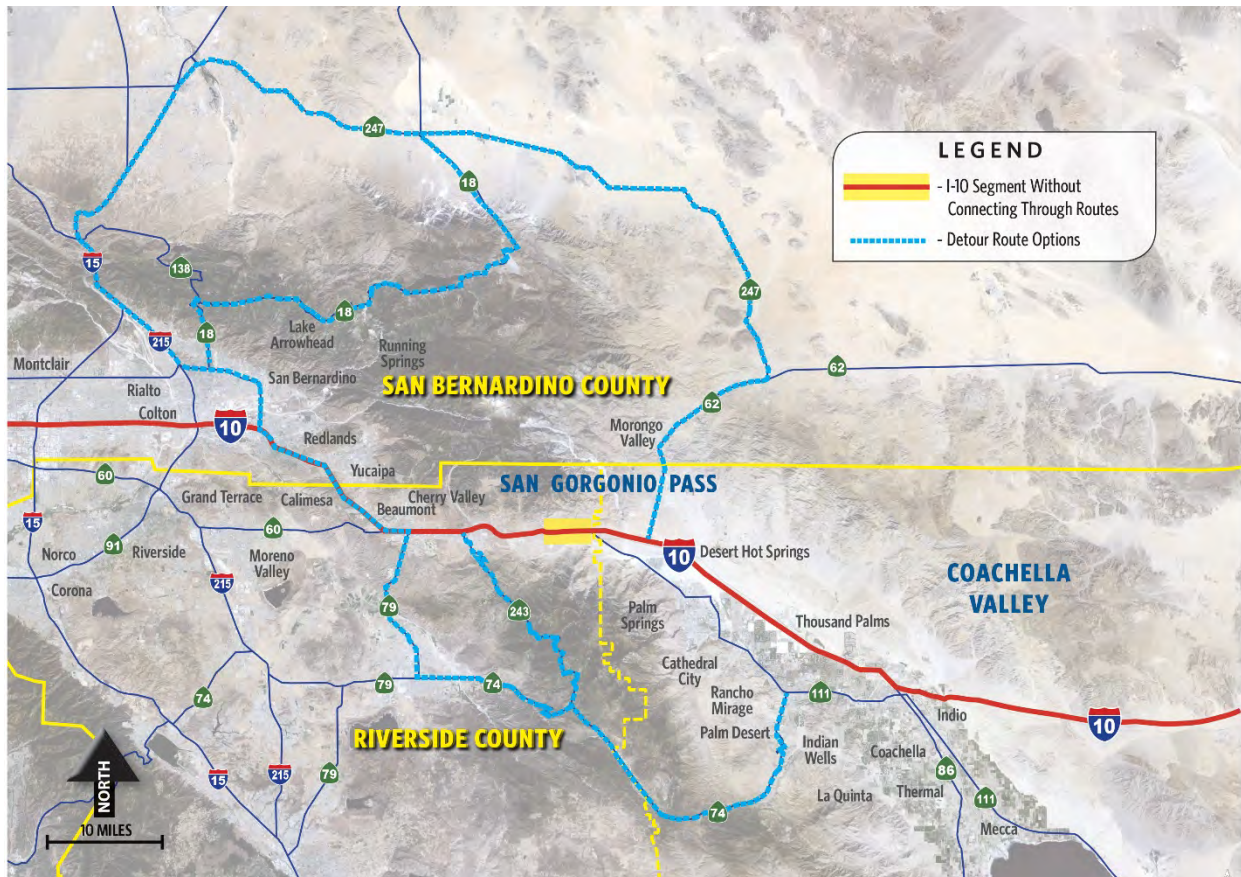
Emergency Highway Closures

Since I-10 is the only road through the San Gorgonio Pass, Program Corridor travel is susceptible to substantial disruption during an emergency closure. Five separate incidents in the San Gorgonio Pass have disrupted travel for several hours or more since 2005, as reported in the *Los Angeles Times* (Los Angeles Times 2014), *Banning Patch* (Banning Patch 2014), and *Desert Sun* (Desert Sun 2016):

- **June 2005:** A high-speed pursuit of a homicide suspect led to gunfire and a 12-hour shutdown of the freeway near Cabazon. Stranded drivers slept in their cars while others needed medical attention because of the heat (Los Angeles Times 2014).
- **December 2010:** A fatal collision involving a big rig and a spill of fertilizer and diesel oil near Whitewater closed I-10 for 6 hours (Los Angeles Times 2014).
- **February 2012:** A broken computer system led to a delay in concrete slabs needed for lanes that were ground up during repaving. Three of the four westbound lanes were closed for almost 1 full day, leading to a 25-mile backup in Banning, with traffic spilling into Palm Springs (Los Angeles Times 2014).
- **September 2014:** A fiery big rig crash shut down westbound I-10 east of Cabazon at 6:45 a.m. The four westbound affected lanes were closed for almost 12 hours before resuming service at 6:00 p.m. (Banning Patch 2014).
- **October 2016:** A tour bus slammed into the back of a big rig killing 13 and injuring 31 people. The crash occurred just west of Palm Springs at 5:00 a.m. and shut down all westbound lanes of I-10 until 4:00 p.m. (Desert Sun 2016).

Figure 1-6 illustrates the reliance of drivers on I-10 through the San Gorgonio Pass, as no parallel highways exist to I-10 through Beaumont, Banning, and Cabazon; the only alternative routes involve lengthy detours and longer travel times. For example, facing an I-10 closure between Banning and Cabazon, a driver bound for Indio could detour south to SR 74, through the mountains and reach Indio in approximately 2 hours, travelling 80 miles. The direct route via I-10 is typically 46 minutes and 50 miles.

Figure 1-6. Interstate 10 Corridor San Gorgonio Pass Detour Alternatives



Source: RCTC 2016

1.6.2 Regional Population and Employment Growth

Population and Employment Growth

Between 1970 and 2010, the Program Corridor's four-county region of Los Angeles, Orange, Riverside, and San Bernardino Counties grew by more than 7.4 million people. In 2010, approximately 46 percent of the population of California resided in the region (RCTC 2016). Los Angeles County has the largest population in the four-county region, followed by Orange County.

Historical growth patterns between 1970 and 2010 show that Riverside and San Bernardino Counties grew at a faster rate than Los Angeles and Orange Counties; Riverside County and San Bernardino County grew at an average annual rate of 4.0 percent and 2.8 percent, respectively, while Los Angeles County and Orange County grew annually by 0.8 percent and 1.9 percent. Population projections prepared by the California Department of Finance forecast that the population within the four-county region will continue to grow between 2018 and 2050. The annual growth rate is anticipated to slow to 0.5 percent annually for the four-county region as a whole, with higher annual growth rates forecast for San Bernardino County (1.0 percent) and Riverside County (1.1 percent) compared with Los Angeles County (0.3 percent) and Orange County (0.4 percent), consistent with historical trends (RCTC 2016).

In 2016, the Coachella Valley had a full-time population of approximately 376,000, which increases substantially during winter months with part-time residents from colder climates (Inland Empire Center for Economics and Public Policy 2016). The San Gorgonio Pass area, which is comprised of the Cities of Banning, Beaumont, and Calimesa, as well as the unincorporated community of Cabazon, had a population of more than 77,600 and employment of more than 14,500 including a major resort/casino and outlet mall (SCAG 2016).

The Coachella Valley is projected to be one of the fastest-growing areas in the state by 2040, with the permanent population projected to exceed 595,100 and employment growing by 94 percent to more than 253,700 (SCAG 2016). The San Gorgonio Pass area population is projected to almost double to 143,000, with employment more than doubling to 38,100 (SCAG 2016). These projected increases in population and employment will increase demand for reliable and safe travel options for people living and working in the Program Corridor.

Tourism Industry

The Coachella Valley is home to a large tourism industry that attracts millions of visitors annually from Southern California and around the world. In addition to providing a large base of employment in the Coachella Valley, the tourism industry also affects transportation demand in the Program Corridor. In 2017, Joshua Tree National Park received 2.8 million visitors, and the Palm Spring Aerial Tramway drew 630,000 visitors (Greater Palm Springs Convention and Visitors Bureau [GPSCVB] 2017). In addition, the regional economic benefit of the Coachella and Stagecoach Festivals alone exceeded the \$403 million projected by GPSCVB (GPSCVB 2017). In 2017, GPSCVB reported nearly 13 million visitors spent a total of \$5.5 billion in the Coachella Valley, of which overnight visitors accounted for 45 percent of volume and 62.3 percent of total visitor spending. A sample of the larger events is listed in Table 1-3.

Table 1-3. Major Events in Coachella Valley

Event	Month	Location	Duration	2017 Attendance
Career Builder Challenge	January	La Quinta	5 days	50,000
All Nippon Airways Inspiration Ladies Professional Golf Association Tournament	March/April	Rancho Mirage	4 days	50,000
Palm Springs International Film Festival	January	Palm Desert	12 days	135,000
Palm Springs Modernism Week	February	Palm Springs	10 days	97,000
BNP Paribas Open Tennis Tournament	March	Indian Wells	14 days	439,261
El Paseo Fashion Week	March	Palm Desert	7 days	13,200
La Quinta Arts Festival	April	La Quinta	4 days	20,000
The Dinah Shore Weekend Festival	April	Palm Springs	2 days	20,000
Coachella Valley Music and Arts Festival	April	Indio	6 days (2 weekends)	250,000
Stagecoach Country Music Festival	April	Indio	2 days	75,000
Palm Springs International ShortFest	June	Palm Springs	7 days	22,000
Comic Con Palm Springs	August	Palm Springs	3 days	15,000

Source: GPSCVB 2017

1.6.3 Disadvantaged Communities

The Tier 1/Program EIS/EIR Study Area includes a number of communities classified as disadvantaged communities by the California Environmental Protection Agency (CalEPA) per Senate Bill (SB) 535. These communities are specifically targeted for investment of proceeds from the state's cap-and-trade program for the purpose of improving public health, quality of life, and economic opportunity in California's most burdened communities while reducing pollution that causes climate change. Within the Tier 1/Program EIS/EIR Study Area, disadvantaged communities

are concentrated in the Los Angeles area, San Bernardino County, and parts of the Cities of Beaumont, Indio, and Coachella.

Five of the nine incorporated cities in the Coachella Valley, containing over 40 percent of the valley's population, have poverty rates exceeding 15 percent, which is the federal average poverty rate. Two of the nine incorporated cities have poverty rates that exceed 25 percent. In addition, two of the unincorporated communities of the Coachella Valley have poverty rates approaching 50 percent (Mecca and Oasis). Two of the three San Gorgonio Pass area cities (Beaumont and Banning), containing 85 percent of the San Gorgonio Pass area population, have poverty rates exceeding 15 percent; the poverty rate exceeds 21 percent in Beaumont. The unincorporated community of Cabazon also has a poverty rate that exceeds 30 percent (U.S. Census Bureau 2016a).

In addition, a substantial portion within these disadvantaged communities does not own personal vehicles and rely on alternative transportation services. East of Colton, the lack of available alternative transportation options leaves the I-10 corridor underserved for these populations. In addition, existing bus service by SunLine and Greyhound operates almost entirely on the freeway system with a limited number of intermediate stops; thus, only limited connections to transit are available to these communities along the I-10 corridor.

2 Program Alternatives

This chapter describes the No Build and Build Alternative Options considered in this Tier 1/Program EIS/EIR. The No Build and Build Alternative Options are described to a level of detail consistent with a Tier 1/Program EIS/EIR and sufficient to evaluate benefits and effects on both the built and natural environments.

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, a reasonable range of alternatives were evaluated in this Tier 1/Program EIS/EIR.

Specifically, the alternatives include the No Build Alternative, which is used as a baseline for comparison purposes and describes the impacts if the Program is not implemented, and the Build Alternative, which is described with three implementation options (Section 2.3.2).

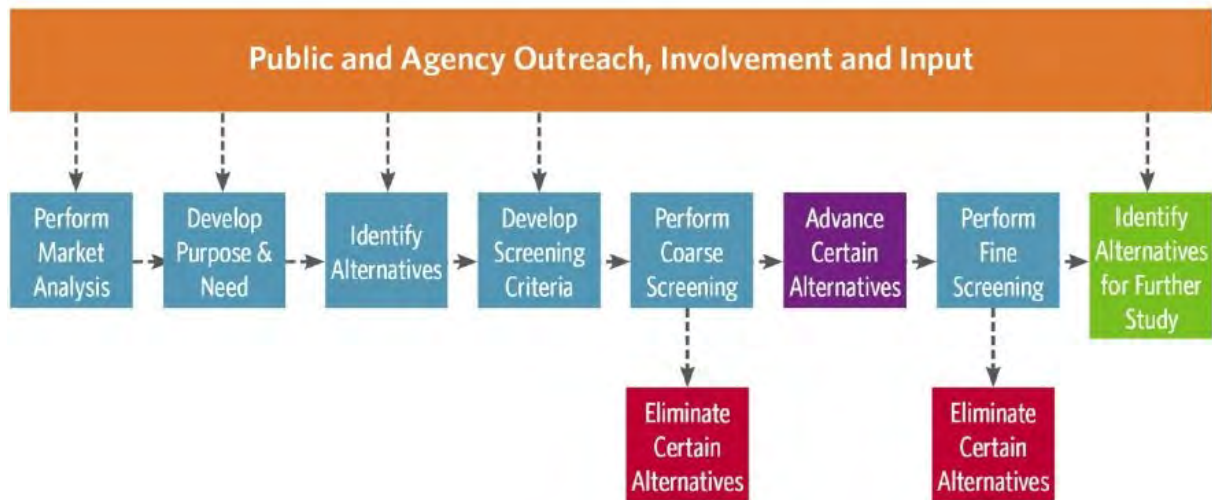
This chapter describes the alternatives selection process used to identify and evaluate the No Build Alternative and the Build Alternative Options for the Program for purposes of NEPA and CEQA. The 2016 AA Report included an evaluation of a reasonable range of alternatives for implementation of daily intercity passenger rail service in the Program Corridor. FRA, Caltrans, and RCTC used this process to identify a reasonable range of preliminary alternatives that could be evaluated in the SDP and this Tier 1/Program EIS/EIR.

2.1 Alternatives Selection Process

2.1.1 2016 Alternatives Analysis Report Screening and Selection Process

At the outset of the AA process, a comprehensive public outreach plan was developed to serve as the blueprint for community engagement and stakeholder input. Stakeholders included cities, transportation providers, and other local agencies and entities within the Program Corridor. Feedback from stakeholder input and community engagement efforts helped to inform key decisions, including defining the Purpose and Need statement, Program termini, route alternatives, and potential station area locations. Figure 2-1 illustrates the AA process.

Figure 2-1. Alternatives Analysis Process



Study Area and Route Alternatives Studied in the Alternatives Analysis Report

The study area used for the 2016 AA Report consists of two sections: the Western Section and Eastern Section (Figure 1-1 in Chapter 1, Purpose and Need, of this Tier 1/Program EIS/EIR). The 2016 AA Report identified six potential route alternatives and service options for the Program Corridor based on the Purpose and Need statement, review of previous studies, and comments from agencies and the public. In the Western Section of the Program Corridor, various combinations of four existing rail lines between the cities of Los Angeles and Colton were evaluated. For the Eastern Section, all potential route alternatives utilized UP's Yuma Subdivision between Colton and Indio. The six route alternatives are shown on Figure 2-2 and in Table 2-1.

During preparation of the 2016 AA Report, the City of Indio was proposed to be the eastern terminus of the Program Corridor. Therefore, the City of Coachella was not included in the 2016 AA Report. However, the City of Coachella is located within the 15-mile Indio station catchment area studied in the 2016 AA Report. Based on comments received during the formal scoping period, FRA, Caltrans, and RCTC extended the eastern terminus of the Program Corridor beyond Indio to include the adjoining City of Coachella. The extension of the eastern terminus of the Program Corridor would not affect the conclusions reached in the 2016 AA Report, as only one route alternative in the Eastern Section (between Colton and Indio) was evaluated in the 2016 AA Report: the existing UP rail line.

Figure 2-2. Program Corridor Route Alternatives Considered in the Alternatives Analysis



Source: RCTC 2016

Notes:

Alternative 4 has two variations between Los Angeles and San Bernardino (Route Alternative 4-A and Route Alternative 4-B), resulting in a total of six route alternatives. During preparation of the 2016 AA Report, Indio was anticipated to be the eastern terminus of the Program Corridor.

Notes:

AA=Alternatives Analysis

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Table 2-1. Route Alternatives Studied in the 2016 Alternatives Analysis Report

Route Alternative	Alignment Description	Eastern Terminus ^a	Western Terminus	Mode	Rail Lines
1	Los Angeles-Indio Rail Service via Fullerton/Riverside	Indio	LAUS	Intercity rail	BNSF San Bernardino Subdivision + UP Yuma Subdivision
2	Los Angeles-Indio Rail Service via Pomona/Riverside	Indio	LAUS	Intercity rail	UP Los Angeles Subdivision + UP Yuma Subdivision
3	Los Angeles-Indio Rail Service via Pomona/Ontario Airport	Indio	LAUS	Intercity rail	UP Alhambra Subdivision + UP Yuma Subdivision
4-A	Los Angeles-Indio Rail Service via Montclair/Rialto	Indio	LAUS	Intercity rail	SCRRA San Gabriel Subdivision + UP Yuma Subdivision
4-B	Los Angeles-Indio Rail Service via Montclair/San Bernardino	Indio	LAUS	Intercity rail	SCRRA San Gabriel Subdivision + UP Yuma Subdivision
5	Los Angeles-Indio Rail Service via Montclair/San Bernardino	Indio	LAUS	Intercity rail	UP Alhambra + SCRRA San Gabriel Subdivision + UP Yuma Subdivision

Source: RCTC 2016

Notes:

^a During preparation of the 2016 AA Report, Indio was anticipated to be the eastern terminus of the Program Corridor.

AA=Alternatives Analysis; LAUS=Los Angeles Union Station; SCRRA=Southern California Regional Rail Authority; UP=Union Pacific Railroad

Route Alternatives 1 through 3 proposed the use of the existing UP Yuma Subdivision between Colton and Indio and existing rail lines west of Colton, as described below:

- **Route Alternative 1** proposed the use of the BNSF San Bernardino Subdivision from LAUS through Fullerton and Riverside to reach Colton.
- **Route Alternative 2** proposed the use of the UP Los Angeles Subdivision from LAUS through Pomona and Riverside to reach Colton.

- **Route Alternative 3** proposed the use of the UP Alhambra Subdivision from LAUS through Pomona and Ontario to reach Colton.

Route Alternative 4 proposed the use of the SCRRA San Gabriel Subdivision (owned by Metro) and the San Bernardino County Transportation Authority¹ (SBCTA) from LAUS to San Bernardino, the SCRRA Short Way Subdivision from San Bernardino to Colton, and the UP Yuma Subdivision from Colton to Indio. Route Alternative 4 had two variations between Los Angeles and San Bernardino, as described below:

- **Route Alternative 4-A** proposed the use of the SCRRA San Gabriel Subdivision from LAUS, traveling eastward through Montclair and Rialto to reach a new eastward connection in San Bernardino with the Short Way Subdivision. This route alternative would not travel farther east along the San Gabriel Subdivision to serve the new San Bernardino Transit Center in downtown San Bernardino, making its length approximately 4 miles shorter than Route Alternative 4-B.
- **Route Alternative 4-B** also proposed the use of the SCRRA San Gabriel Subdivision from LAUS but continues east to serve the new San Bernardino Transit Center in San Bernardino. Once reaching San Bernardino, trains utilizing Route Alternative 4-B would reverse direction to reach the existing southward connection to the Short Way Subdivision. Route Alternative 4-B is approximately 4 miles longer than Route Alternative 4-A.

Route Alternative 5 also proposed the use of the UP Yuma Subdivision between Colton and Indio and a combination of rail lines west of Colton, as described below:

- **Route Alternative 5** proposed the use of the UP Alhambra Subdivision between Los Angeles and El Monte, the SCRRA San Gabriel Subdivision between El Monte and San Bernardino, and the SCRRA Short Way Subdivision between San Bernardino and Colton. Similar to Route Alternative 4-B, Route Alternative 5 travels east to serve the new San Bernardino Transit Center in San Bernardino.

Existing and Potential Station Locations Considered

During preparation of the 2016 AA Report, the Program termini for proposed passenger rail service were Los Angeles and Indio in the west and east, respectively. As depicted on Figure 2-2, up to six station locations were planned within station catchment areas throughout the Program Corridor. Intermediate station stops were located on each route alternative at the largest intermediate cities, or

¹ The San Bernardino County Transportation Authority (SBCTA) was formerly known as the San Bernardino Associated Governments.

as close as possible to the largest intermediate cities², to attract and serve the largest possible ridership. A station stop was assumed within each of the existing and potential station areas shown on Figure 2-2. Table 2-2 provides the existing and potential station areas considered for each route alternative considered in the 2016 AA Report.

The intermediate station stops were different for each route alternative, as the route alternatives were geographically separated in the areas between LAUS and Colton and only shared a common alignment east of Colton. The number of station stops was determined with recognition that too many stops would make the overall travel time unacceptably long and less competitive with automobile travel times, thus reducing ridership. Dwell times of 1 to 2 minutes at intermediate stations were also factored into trip time estimates, which align with scheduled dwell times on similar state-supported intercity passenger rail services (such as the Pacific Surfliner).

Table 2-2. Existing and Potential Station Areas Studied in the 2016 Alternatives Analysis Report

Route Alternative	Existing Stations	Potential New Station Areas
1	LAUS, Fullerton, Riverside, Palm Springs	Loma Linda, Rancho Mirage, Cabazon, and Indio ^a
2	LAUS, Pomona, Riverside, Palm Springs	Loma Linda, Rancho Mirage, Cabazon, and Indio ^a
3	LAUS, Pomona, Palm Springs	Ontario Airport, Loma Linda, Rancho Mirage, Cabazon, and Indio ^a
4-A	LAUS, Montclair, Rialto, Palm Springs	Loma Linda, Rancho Mirage, Cabazon, and Indio ^a
4-B	LAUS, Montclair, San Bernardino, Palm Springs	Loma Linda, Rancho Mirage, Cabazon, and Indio ^a

² Intermediate cities are cities with a population between 50,000 and 1,000,000 people that generally play a primary role in connecting important rural and urban areas to basic facilities and services.

Route Alternative	Existing Stations	Potential New Station Areas
5	LAUS, Montclair, San Bernardino, Palm Springs	Loma Linda, Rancho Mirage, Cabazon, and Indio ^a

Source: RCTC 2016

Notes:

^a During preparation of the 2016 AA Report, Indio was anticipated to be the eastern terminus of the Program Corridor.

AA=Alternatives Analysis; LAUS=Los Angeles Union Station

Screening Criteria

The following four screening criteria were relied on during the process of evaluating and selecting reasonable and feasible route alternatives to carry forward in the SDP and Tier 1/Program EIS/EIR:

- Achieving the Program’s Purpose and Need
- Environmental constraints
- Technical feasibility
- Economic feasibility

These screening criteria were used to compare each route alternative during a two-step screening process: an initial coarse-level screening and, in greater detail, a subsequent fine-level screening. The initial coarse-level screening identified whether any route alternative was hindered by major challenges (and would, thus, be eliminated from subsequent fine-level screening). The fine-level screening evaluated the remaining route alternatives in greater quantitative and qualitative detail. The 2016 AA Report provides a detailed discussion of the screening criteria and how the screening criteria were applied to each route alternative.

Screening Process

Figure 2-3 illustrates the overall route alternative screening and selection process.

Figure 2-3. Alternatives Selection Process Flow Chart



Coarse-Level Route Alternative Screening

For the Western Section of the Program Corridor, route alternatives that did not meet the Purpose and Need, had major environmental challenges, or were not technically or economically feasible were eliminated during the coarse-level screening process.

As a result of applying these criteria, the coarse-level screening concluded that Route Alternatives 2 and 3 were eliminated from further study. Both route alternatives are high-density freight lines, with substantial sections of single track that would require costly expansion projects to create the additional capacity needed to reliably operate the proposed passenger rail service and mitigate impacts on freight rail capacity and reliability.

Route Alternative 2 could require construction of up to 10 miles of additional second main line track, with potentially sections of third main line track to accommodate Metrolink commuter services. In addition, Route Alternative 2 could require construction of infrastructure in various locations to hold freight trains waiting for space to enter BNSF's San Bernardino Subdivision or the Alameda corridor. Route Alternative 3 could require construction of up to 39 miles of additional second main line track. Both routes also experience freight-train congestion and serve freight terminals where trains enter and exit at low speeds, which have the potential to affect passenger-train travel reliability. Given the extensive sections of single main line track and presence of heavy unscheduled freight train traffic, the potential for introducing travel unreliability, slow projected running time, high technical complexity, and high cost for expanding capacity, Route Alternatives 2 and 3 were eliminated from further study.

The remaining four route alternatives for the Western Section of the Program Corridor were carried forward for more detailed consideration in the fine-level screening.

All route alternatives route considered using existing freight-passenger routes rather than constructing a new rail right-of-way (ROW). Consequently, for the Eastern Section, the coarse-level screening was limited to the UP Yuma Subdivision. Based on the results of the coarse-level screening, the UP Yuma Subdivision was carried forward into the fine-level screening as the only reasonable and feasible route alternative for the Eastern Section of the Program Corridor.

In addition, non-rail alternatives were analyzed in the 2016 AA Report that included analysis of potential intercity bus service options. However, the analysis concluded that the bus service options would not be able to achieve the identified Purpose and Need and were removed from further consideration.

Fine-Level Route Alternative Screening

Fine-level screening was conducted to further evaluate the reasonable and feasible route alternatives remaining after the coarse-level screening. The fine-level screening analyzed criteria such as environmental impacts, ROW availability, passenger and freight capacity, feasibility of the alignment, cost of structures, number of grade crossings, and economic feasibility in terms of capital and operations and maintenance costs. Four route alternatives were evaluated: Route Alternatives 1, 4-A, 4-B, and 5.

To determine ridership and revenue projections, a service plan consisting of two daily round trips between LAUS and Indio was presumed to operate for each of the four route alternatives screened, with identical arrival and departure times at LAUS for all route alternatives. As summarized in Table 2-3, the fine-level screening concluded that, of the remaining four route alternatives carried forward from the coarse-level alternative screening process, three route alternatives were not reasonable or feasible based on the technical or economic feasibility.

Table 2-3. Route Alternative Reasonability and Feasibility Summary

Route Alternative	Does the Route Alternative Achieve Program Purpose and Need?	Does the Route Alternative Meet Technical Criteria?	Does the Route Alternative Meet Economic Criteria?	Is the Route Alternative Reasonable and Feasible?
Route Alternative 1	Yes. Route Alternative 1 fully achieves the Program's Purpose and Need by providing a competitive travel mode.	Yes. Route Alternative 1 meets technical criteria and does not require alignment change right of way issues.	Yes. Although Route Alternative 1 has higher operations and maintenance costs because of its longer mileage, Route Alternative 1 has the highest projected ridership and a substantially lower implementation cost than the other route alternatives.	Yes. Route Alternative 1 meets the technical and economic criteria and was determined to be reasonable and feasible.
Route Alternative 4-A	Partially. Route Alternative 4-A partially achieves the Program's Purpose and Need by providing a competitive travel mode.	No. Route Alternative 4-A would require complex connecting tracks at San Bernardino and Colton, additional main line track, and a major new flyover across the BNSF San Bernardino Subdivision in San Bernardino. This flyover would be costly and impact adjacent urban areas.	No. Route Alternative 4-A does not meet the economic criterion because of the excessive capital cost requirements. In addition, while Route Alternative 4-A has the shortest projected travel time, it has lower ridership projections than Route Alternative 1.	No. Route Alternative 4-A does not meet the identified technical and economic criteria and only partially achieves the Program's Purpose and Need. Route Alternative 4-A was determined to be neither reasonable nor feasible.

Route Alternative	Does the Route Alternative Achieve Program Purpose and Need?	Does the Route Alternative Meet Technical Criteria?	Does the Route Alternative Meet Economic Criteria?	Is the Route Alternative Reasonable and Feasible?
Route Alternative 4-B	No. Route Alternative 4-B does not achieve the Program’s Purpose and Need because it would not offer a competitive travel time due to an additional 20 to 30 minutes required for a mid-route station stop at San Bernardino.	No. Route Alternative 4-B does not meet the technical criteria because it would require a complex connecting track at Colton, additional main line track, and a potential new flyover across the BNSF San Bernardino Subdivision in San Bernardino. This flyover would be costly and impact adjacent urban areas.	No. Route Alternative 4-B does not meet the economic criterion because of the excessive capital cost requirements. In addition, Route Alternative 4-B, along with Route Alternative 5, has the lowest projected ridership.	No. Route Alternative 4-B does not meet the identified technical and economic criteria and does not achieve the Program’s Purpose and Need. Route Alternative 4-A was determined to be neither reasonable nor feasible.
Route Alternative 5	No. Route Alternative 5 does not achieve the Program’s Purpose and because it would not offer a competitive travel time due to an additional 20 to 30 minutes required for a mid-route station stop at San Bernardino and slower track speed at UP’s Alhambra Subdivision.	No. Route Alternative 5 would require a complex connecting track at Colton, including a potential new flyover across the BNSF San Bernardino Subdivision in San Bernardino. This flyover would be costly and impact adjacent urban areas.	No. Route Alternative 5 does not meet the economic criterion because of the excessive capital cost requirements. Route Alternative 5 would cost more than Alternative 4-B without providing additional ridership benefits. This alternative has the longest projected travel time of the route alternatives, and, along with Route Alternative 4-B, has the lowest projected ridership.	No. Route Alternative 5 does not meet the identified technical and economic criteria and does not achieve the Program’s Purpose and Need. Route Alternative 5 was determined to be neither reasonable nor feasible.

Source: RCTC 2016

Notes:

UP=Union Pacific Railroad

The fine-level screening process resulted in the recommendation that one of the four remaining route alternatives in the Western Section be carried forward (Route Alternative 1) in the SDP and the Tier 1/Program EIS/EIR. Although one route alternative is carried forward, this Tier 1/Program EIS/EIR includes a reasonable range of alternatives for major Program elements (e.g., speed, station stop pattern/service options, and frequency) associated with the Build Alternative Options.

In addition to meeting the criteria described above, Route Alternative 1 would also allow for the use of the existing shared use agreement and memorandum of understanding between RCTC and the railroad stakeholders, which provides for available passenger rail capacity along the Program Corridor. In the Western Section of the Program Corridor, RCTC has an existing shared use agreement with BNSF that pairs staged infrastructure improvement projects to available passenger train slots on the route (Atchison, Topeka, and Santa Fe Railway Company and RCTC 1992). In addition, an memorandum of understanding between SBCTA, UP, and BNSF associated with the Colton Crossing Railroad Grade Separation Project provides for the conversion of four non-revenue passenger train movements to revenue train movements in the segment of the San Bernardino Subdivision between Riverside and San Bernardino (SBCTA, UP, and BNSF 2010). Under these existing agreements, RCTC has the ability to commit four available train slots between LAUS and Colton for the proposed passenger rail service without constructing additional rail capacity improvement projects in the Western Section. However, if the proposed passenger rail service does not occur, RCTC could commit these slots to other intercity passenger or commuter rail services in the Western Section of the Program Corridor.

Under the existing agreements, passenger/commuter rail frequencies in the busiest part of the Western Section of the Program Corridor, between Los Angeles and Fullerton, are currently at capacity. However, specific capacity improvement projects (Section 2.3.1) planned or in construction along Route Alternative 1 in the Western Section of the Program Corridor would create additional passenger/train commuter train slots between Los Angeles and Fullerton by 2024 or sooner. RCTC has the ability to commit four of these additional slots to the proposed passenger rail service without the need to reduce existing passenger/commuter rail services by an equivalent number of frequencies between Los Angeles and Fullerton. The additional passenger/commuter slots associated with the near-term capacity improvement projects planned or in construction between Los Angeles and Fullerton would also support other service increases in commuter and intercity passenger rail traffic that are anticipated to occur regardless of the proposed passenger rail service implementation. The capacity improvement projects that are planned or in construction are programmed for completion before the proposed passenger rail service would start. Therefore, infrastructure associated with the capacity improvement projects is considered part of baseline conditions in the Western Section of the Program Corridor between Los Angeles and Colton.

2.1.2 Scoping Comments Received Regarding Alternatives

On October 11, 2016, the Tier 1/Program EIS/EIR NOI/NOP was issued. Agencies, stakeholders, and the public submitted comments on the scope and content of the Program, which were assessed and incorporated into the SDP and Tier 1/Program EIS/EIR, including the consideration and evaluation of additional Build Alternative Options. In total, 37 comment letters or submissions were received during the scoping period: 13 from federal, state, and local agencies; 23 from individuals and other organizations; and 1 from a railroad stakeholder.

Of the 37 comment letters or submissions, 5 comment letters concerned route or alternative alignments; 4 of those comment letters expressed general support for the proposed route alternative or suggested route alternatives that were assessed during the AA and determined to be technically or economically infeasible.

The fifth comment letter requested that the City of Coachella be considered for a new station location. As previously mentioned, the City of Indio was identified as the eastern terminus of the Program Corridor in the 2016 AA Report. However, the City of Coachella is within the Indio station catchment area studied in the 2016 AA Report. Therefore, FRA, Caltrans, and RCTC elected to carry two terminus service options for the Eastern Section of the Program Corridor for further study in the Tier 1/Program EIS/EIR: (1) the originally proposed eastern terminus at Indio, and (2) an extension 4 miles beyond Indio to Coachella with station stops in both cities.

2.2 CEQA Proposed Program

The CEQA lead agency, RCTC, identified Route Alternative 1 as the proposed CEQA Program (also known under CEQA as the proposed Project) in this Tier 1/Program EIS/EIR to provide an accurate, stable, and finite description of the “development proposal for the purpose of environmental analysis” pursuant to CEQA Guidelines Section 15378(d). Identification of the proposed CEQA Program is intended to facilitate public comment at the local and state level.

2.3 Alternatives Definition

The No Build Alternative is defined and evaluated in this Tier 1/Program EIS/EIR as a comparison with the Build Alternative Options. For the purpose of comparison between the Build Alternative Options and No Build Alternative, three horizon years were analyzed:

- Existing Year (2018): This scenario includes Program-related transportation effects on the surrounding natural and built environment, including roadways and rail (passenger and

freight) systems under existing conditions. This scenario was analyzed to fulfill CEQA requirements for establishing a baseline environmental setting.

- **Opening Year (2024):** This scenario includes Program-related transportation effects on the surrounding natural and built environment, including roadways and rail (passenger and freight) systems on the first day the Program is operational.
- **Future Year (2044):** This scenario includes Program-related transportation effects on the surrounding natural and built environment, including roadways and rail (passenger and freight) systems at the conclusion of a 20-year time horizon following the completion of the passenger project.

2.3.1 No Build Alternative

The No Build Alternative assumes no new service is implemented in the Program Corridor except for existing and committed transportation improvements and represents the baseline condition.

Western Section

Current Service Frequency

Under the No Build Alternative, current daily intercity passenger rail service levels in the Western Section of the Program Corridor would remain unchanged, and no new infrastructure would be constructed. The Western Section of the Program Corridor is comprised primarily of BNSF's San Bernardino Subdivision, a high-density freight train route that also hosts Amtrak passenger and Metrolink commuter rail traffic. In addition, UP freight trains operating to and from the UP Los Angeles Subdivision at Riverside have trackage rights at BNSF's San Bernardino Subdivision between Riverside and San Bernardino. Detailed information about BNSF track speeds, gradients, terminal locations, mileages, and signaling in the Western Section of the Program Corridor is provided in the 2016 AA Report.

The Western Section of the Program Corridor plays a critical role in the movement of domestic and imported consumer goods carried in BNSF intermodal trains between Southern California ports and terminals throughout the U.S. Intermodal trains to and from the Ports of Los Angeles and Long Beach operate the entire length of the Western Section and use a connection at the Program Corridor's western end with the Alameda corridor rail line serving the ports. BNSF operates additional intermodal trains to and from its own intermodal terminals located along the Program Corridor at Commerce and Hobart Yards.

The BNSF San Bernardino Subdivision has multiple main line tracks for its entire length, consisting of alternating sections of double track and triple track. The current service levels (2018) in the Western Section of the Program Corridor are described below:

- Current freight train traffic between Los Angeles and Colton averages 32 to 54 trains per day for the lowest and highest density sections, respectively (Caltrans 2018).
- Two daily Amtrak long-distance passenger trains operate the entire length of the Western Section, and 24 daily Amtrak Pacific Surfliner passenger trains use the portion of the Program Corridor between Los Angeles and Fullerton, as noted in Amtrak’s System Timetable (Amtrak 2018). Amtrak station stops in the Western Section are located at LAUS (all trains), Fullerton (all trains), and Riverside (long-distance trains only).
- Weekday Metrolink commuter rail traffic varies by segment. Metrolink’s All Lines Timetable (Metrolink 2018) indicates that it operates 28 trains per day on weekdays between Los Angeles and Fullerton; 9 trains per day between Fullerton and Atwood; 25 trains per day between Atwood and Riverside; 20 trains per day between Riverside and Highgrove; and 8 trains per day from Highgrove to Colton. Weekend Metrolink commuter rail traffic also varies, with 12 trains per day between Los Angeles and Fullerton; 4 trains per day between Fullerton and Atwood; 8 trains per day between Atwood and Riverside; and 4 trains per day between Riverside and Colton.

Table 2-4 summarizes the Existing Year (2018) average daily train frequencies along the Western Section of the Program Corridor.

Table 2-4. Western Section Existing Year (2018) Daily Train Operations in the Program Corridor (Average One-Way Trips)

Endpoints	Existing Intercity Passenger One-way Train Trips	Existing Commuter One-way Train Trips	Existing Freight One-way Train Trips	Total Existing 2018 Average Daily Volume of Trains
Western Section (SCRRA – Host Railroad; Additional Operators – Amtrak, BNSF)				
LAUS-Soto ^a	26	28	1	55
Western Section (BNSF– Host Railroad; Additional Operators – Amtrak, SCRRA, UP)				
Los Angeles (Soto ^a)-Fullerton	26	28	32	86
Fullerton-Atwood	2	9	32	43

Endpoints	Existing Intercity Passenger One-way Train Trips	Existing Commuter One-way Train Trips	Existing Freight One-way Train Trips	Total Existing 2018 Average Daily Volume of Trains
Atwood-Riverside	2	25	34	61
Riverside-Highgrove	2	20	54	76
Highgrove-Colton	2	8	54	64

Notes:

Daily train counts represent revenue train movements on a weekday (Monday through Friday). Freight train counts are based on Base Year (2013) daily freight train totals for the line segments shown above, as published in the *California State Rail Plan*, Appendix A.4, Table 20 (Caltrans 2018). Passenger and commuter train counts are based on the following public timetables in effect in September 2018: Metrolink “All Lines” timetable effective May 14, 2018, the 2018 LOSSAN Southern California Passenger Rail System Map and Timetables effective April 1, 2018, the Amtrak Southwest Chief timetable effective July 31, 2018, and the Amtrak Sunset Limited timetable effective March 11, 2018.

^a This is the Soto interlocking (Milepost 144.4) in Los Angeles.

Caltrans=California Department of Transportation; LAUS=Los Angeles Union Station; LOSSAN=Los Angeles-San Diego-San Luis Obispo; SCRRA=Southern California Regional Rail Authority; UP=Union Pacific Railroad

Current Speed and Reliability

Maximum authorized passenger train speed in the Western Section of the Program Corridor is 79 miles per hour west of Fullerton and 60 miles per hour east of Fullerton. The maximum authorized freight train speed is 50 miles per hour throughout the Western Section; however, grades of 1 percent ascending eastward from Fullerton to Colton have the potential to slow or prevent freight trains from reaching track speed. The route is equipped with wayside signaling and centralized traffic control and positive train control (PTC). At Colton, a low-speed (20 miles per hour) connecting track is in operation that enables trains from Indio operating westbound on UP’s Yuma Subdivision to directly access and operate westbound on BNSF’s San Bernardino Subdivision.

Eastern Section

Current Service Frequency

Under the No Build Alternative, current daily intercity passenger rail service levels in the Eastern Section of the Program Corridor would remain unchanged, and no new infrastructure would be constructed. The Eastern Section of the Program Corridor, the UP Yuma Subdivision, is a high-density double-track freight train route. This subdivision carries UP’s long-haul intermodal,

automotive, bulk, and manifest freight traffic destined to and from major terminals in Southern California, including the Ports of Los Angeles and Long Beach. The UP Yuma Subdivision is part of UP's Sunset Route between Los Angeles and El Paso, Texas, which links Southern California with major population and manufacturing centers in the Midwest, Southwest, and Gulf Coast, as well as gateways to the Eastern U.S. and Mexico. The current service levels in the Eastern Section of the Program Corridor are summarized below:

- Current traffic averages 42 freight trains per day (Caltrans 2018). However, freight train volumes have substantial variability associated with vessel calls at the ports, customer requirements, day of week, and import-export fluctuations.
- One Amtrak long-distance passenger train, the Sunset Limited, operates the entire length of the Eastern Section of the Program Corridor 3 days per week in each direction. This train, which runs between Los Angeles and New Orleans, makes one station stop within the Program Corridor at Palm Springs.

Table 2-12 summarizes the Existing Year (2018) average daily train frequencies along the Eastern Section of the Program Corridor.

Table 2-5. Eastern Section Existing Year (2018) Daily Train Operations in the Program Corridor (Average One-Way Trips)

Endpoint	Existing Intercity Passenger One-way Train Trips	Existing Commuter One-way Train Trips	Existing Freight One-way Train Trips	Total Existing 2018 Average Daily Volume of Trains
Eastern Section (UP – Host Railroad; Additional Operator – Amtrak)				
Colton-Coachella	1	0	42	43

Notes:

Daily train counts represent revenue train movements on a weekday (Monday through Friday). Freight train counts are based on Base Year (2013) daily freight train totals for the line segments shown above, as published in the *California State Rail Plan*, Appendix A.4, Table 20 (Caltrans 2018). Passenger and commuter train counts are based on the following public timetables in effect in September 2018: Metrolink “All Lines” timetable effective May 14, 2018, the 2018 LOSSAN Southern California Passenger Rail System Map and Timetables effective April 1, 2018, the Amtrak Southwest Chief timetable effective July 31, 2018, and the Amtrak Sunset Limited timetable effective March 11, 2018.

Caltrans=California Department of Transportation; LOSSAN=Los Angeles-San Diego-San Luis Obispo; UP=Union Pacific Railroad

Current Speed and Reliability

In the Eastern Section of the Program Corridor, passenger trains have maximum authorized speeds ranging between 30 and 70 miles per hour. The average maximum authorized speed is 59 miles per hour; however, in many sections, the operating speed that a passenger train could attain is less, attributable to the subdivision's grades and curves, time required for acceleration and braking as speed limits change, and time allotted for the station stop at Palm Springs. The lower operating speeds primarily result from curves of 3 to 5 degrees and lengthy gradients of up to 2 percent in each direction of travel. Reduction of curvature or gradient on much of the subdivision would be costly, owing to the adjacent canyon terrain and surrounding urban development. The subdivision's maximum authorized freight train speed is also 70 miles per hour, although most freight trains operate at much lower maximum speeds for similar reasons: the rail line's steep grades and curves that limit freight train speeds. The Eastern Section of the Program Corridor is equipped with wayside signaling with a centralized traffic control overlay and with PTC.

Freight trains on the UP Yuma Subdivision experience operating challenges as a result of the steep grades on either side of San Gorgonio Pass, the geographic formation through which the UP Yuma Subdivision passes between the San Bernardino Mountains to the north and the San Jacinto Mountains to the south. Eastbound trains from Colton have a 1.9 percent climb for more than 20 miles to reach the summit, passing through San Timoteo Canyon. From an elevation of sea level near Indio, westbound trains face a 50-mile climb on a ruling grade that increases to 2.12 percent before cresting the summit of the pass at an elevation of 2,591 feet just east of Beaumont, California. The combination of steep grades on either side of the pass and the sustained upgrade climb for westbound trains and resulting lower operating speeds generates a substantial loss of capacity compared with a double-track main line without heavy grades.

Freight trains can also experience delays or congestion at Colton, where some trains are held to wait for permission to enter BNSF's San Bernardino Subdivision. The West Colton Yard, just west of Colton on the Alhambra Subdivision, is UP's principal classification yard for manifest trains in Southern California, as well as a crew change point for most freight trains that pass through. On days of heavy freight train traffic, one of the two main line tracks on the Yuma Subdivision is frequently occupied east of Colton by several parked freight trains waiting for an open track in West Colton Yard.

Current Passenger Rail/Transit Service for Western and Eastern Sections

The five intercity passenger rail and bus services that currently provide ground-based intercity (not local) public transportation services in the Eastern Section of the Program Corridor are summarized in Table 2-6, with descriptions of service frequencies in effect as of January 2018.

Table 2-6. Current Passenger Rail and Transit Services

Service	Service Description
Amtrak Sunset Limited	Amtrak Sunset Limited provides long-distance passenger rail service with three trips in each direction per week between Los Angeles and New Orleans and makes one intermediate station stop in the Program Corridor at Palm Springs, with all stops at this station scheduled between midnight and 3:00 a.m.
Amtrak Thruway	Amtrak Thruway provides two bus trips each way daily between Fullerton and the Coachella Valley (one round trip to and from Palm Springs and one round trip to and from Indio) for passengers riding on the Amtrak Pacific Surfliner.
SunLine Commuter Link 220	SunLine Commuter Link 220 provides three bus trips each way between the Riverside Metrolink station and Palm Desert on weekdays during commute hours.
Beaumont Commuter Link 120	Beaumont Commuter Link 120 provides seven bus trips each way between the San Bernardino Metrolink station and Beaumont on weekdays and five bus trips each way on Saturday between the same locations.
Greyhound	Greyhound provides private intercity bus service that connects various locations throughout the Los Angeles Basin with Banning, Palm Springs, and Indio.

Programmed and Planned Infrastructure

Western Section

As discussed above, track capacity in the Western Section of the Program Corridor currently exists to accommodate the proposed passenger rail service. However, capacity improvement projects currently planned or in construction between Los Angeles and Fullerton will provide additional passenger/commuter train slots that could be used by the proposed Coachella Valley passenger trains without an equivalent reduction in existing services. Additionally, the increase in passenger/commuter train slots realized by these projects will allow other planned passenger/commuter service improvements to advance.

The No Build Alternative would consist of a continuation of existing and programmed passenger rail and transit services that currently connect the greater Los Angeles metropolitan area with the San Gorgonio Pass area and Coachella Valley. Table 2-7 provides a summary of capacity improvement projects that are currently in construction, programmed, or planned, and will occur regardless of proposed Program.

Table 2-7. Programmed and Planned Capacity Improvement Projects Within the Western Section of the Program Corridor

Project	Description
Rosecrans/Marquardt Grade Separation Project	In construction. This is a grade separation project located in City of Santa Fe Springs that will eliminate the existing at-grade crossing of BNSF's San Bernardino Subdivision at the Rosecrans and Marquardt Avenues. CEQA clearance (Statutory Exemption) was obtained by Metro in February 2016, and NEPA clearance (Environmental Assessment/Finding of No Significant Impact) was obtained by FRA in November 2018. The project is currently in construction with construction activities anticipated through 2023 (Metro 2020).
Third Main Line Track Project	Partially in construction. This project includes construction of 15 miles of a third main line track between Los Angeles and Fullerton within BNSF's existing railroad ROW. Completion of the project will provide 32 additional passenger/commuter slots between Los Angeles and Fullerton, with 10 of the new slots allocated for Amtrak's Pacific Surfliner trains (increasing service availability from today's 24 one-way trips to 34 trips) and 22 of the new slots allocated to Metrolink commuter or RCTC-sponsored passenger service (increasing the number of available Metrolink/RCTC frequencies from today's 28 one-way trips to 50 trips). Metro is currently working with funding partners to execute full funding agreements for ROW acquisition and construction (Metro 2017).
Fullerton Junction Interlocking and Third Main Track Improvements Project	Programmed. This project consists of multiple track and signal improvements, both east and west of the Fullerton train station, including constructing a 4.8-mile third main line track at the Fullerton Junction Interlocking and Third Main Track between Control Point Atwood and Control Point Esperanza on the BNSF San Bernardino Subdivision. Improvements will reduce cascading delays to Amtrak, Metrolink, and BNSF operations. Up to \$30 million in grant funds under the Consolidated Rail Infrastructure and Safety Improvements Program were awarded to this project.
Southern California Optimized Rail Expansion Program	Programmed. The Southern California Optimized Rail Expansion Program consists of a series of capacity improvement projects aimed at improving safety and service and building infrastructure that would enable regional passenger rail service frequency to at least 30 minutes systemwide with better connections to other transit providers. Improvements include capacity improvements at LAUS and on tracks between Los Angeles and Fullerton. The program also includes infrastructure planning funding for projects in El Monte, Simi Valley, Burbank, Rancho Cucamonga, Chatsworth, and other areas throughout the region. The program includes up to \$91.2 million in California Transportation Commission funding and additional funding from a Transit and Intercity Rail Capital Program grant.

Project	Description
Link Union Station Project	<p>Programmed. The project entails the reconstruction of track and station infrastructure at LAUS to meet long-term rail travel needs and improve passenger comfort, safety, and ease of navigation through LAUS. The project will increase rail capacity at LAUS by replacing the current stub-end station track configuration with new run-through station tracks over U.S. 101 and reconfiguring the station’s throat (entry tracks) and rail yard (platform area). The increase in station capacity would allow for more trains to serve LAUS and open new opportunities for one-seat rides to more destinations in Southern California. CEQA clearance (EIR/notice of determination) was obtained by Metro in June 2019, and NEPA clearance (EIS) by California High-Speed Rail Authority is currently in process.</p>
City of Santa Fe Springs Grade Separation Projects	<p>Planned. Three additional grade separation projects on BNSF’s San Bernardino Subdivision in the City of Santa Fe Springs are in the planning stages, but no funding has been committed or programmed; therefore, these projects would not be assumed as part of the No Build Alternative for the purposes of this Tier 1/Program EIS/EIR. These include the Norwalk/Los Nietos Grade Separation Project, Lakeland Road Grade Separation Project, and the Pioneer Boulevard Grade Separation Project.</p>

Notes:

CEQA=California Environmental Quality Act; EIR=environmental impact report; EIS=environmental impact statement; FRA=Federal Railroad Administration; LAUS=Los Angeles Union Station; NEPA=National Environmental Policy Act; RCTC=Riverside County Transportation Commission; ROW=right-of-way

In addition, the No Build Alternative includes forecast growth in freight traffic on BNSF’s San Bernardino Subdivision. The *California State Rail Plan* (Caltrans 2018) anticipates rail intermodal traffic in California will increase at a compound annual growth rate of 2.9 percent through 2040, and rail carload traffic will increase at a compound annual growth rate of 1.7 percent through 2040, which could add approximately 40 additional freight trains to BNSF’s San Bernardino Subdivision west of Riverside and approximately 60 additional freight trains between Riverside and Colton.

Table 2-8 summarizes the Opening Year (2024) average daily train frequencies along the Western Section of the Program Corridor under the No Build Alternative.

Table 2-8. Western Section No Build Alternative Opening Year (2024) Daily Train Operations in the Program Corridor (Average One-Way Trips)

Endpoints	Intercity Passenger One-way Train Trips	Commuter One-way Train Trips	Freight One-way Train Trips	Total 2024 Average Daily Volume of Trains
Western Section (SCRRA – Host Railroad; Additional Operators – Amtrak, BNSF)				
LAUS-Soto ^a	36	50	1	87
Western Section (BNSF– Host Railroad; Additional Operators – Amtrak, SCRRA, UP)				
Los Angeles (Soto ^a)-Fullerton	36	50	38	124
Fullerton-Atwood	2	23	38	63
Atwood-Riverside	2	39	40	81
Riverside-Highgrove	2	24	63	89
Highgrove-Colton	2	12	63	77

Notes:

Daily train counts represent revenue train movements on a weekday (Monday through Friday). Freight train counts are 2.7% compound annual growth increases to 2024 from existing 2018 freight train average daily volumes that were based on Base Year (2013) daily freight train totals for the line segments shown above, as published in the *California State Rail Plan*, Appendix A.4, Table 20 (Caltrans 2018). Passenger and commuter train counts are based on train frequency increases associated with completion of the Third Main Line Track Project on BNSF between Los Angeles and Fullerton, and existing (2018) or previously programmed frequencies on other line segments.

^a This is the Soto interlocking (Milepost 144.4) in Los Angeles.

Caltrans=California Department of Transportation; LAUS=Los Angeles Union Station; SCRRA=Southern California Regional Rail Authority; UP=Union Pacific Railroad

Table 2-9 summarizes the Future Year (2044) average daily train frequencies along the Western Section of the Program Corridor under the No Build Alternative.

Table 2-9. Western Section No Build Alternative Future Year (2044) Daily Train Operations in the Program Corridor (Average One-Way Trips)

Endpoints	California High-Speed Rail Authority One-way Train Trips	Intercity Passenger One-way Train Trips	Commuter One-way Train Trips	Freight One-way Train Trips	Total Average 2044 Daily Volume of Trains
Western Section (SCRRA – Host Railroad; Additional Operators – Amtrak, BNSF)					
LAUS-Soto ^a	100	40	134	1	275
Western Section (BNSF– Host Railroad; Additional Operators – Amtrak, SCRRA, UP)					
Los Angeles (Soto ^a)-Fullerton	100	40	134	74	348
Fullerton-Atwood	0	2	44	74	120
Atwood-Riverside	0	2	88	81	171
Riverside-Highgrove	0	2	124	118	244
Highgrove-Colton	0	2	44	118	164

Notes:

Daily train counts represent revenue train movements on a weekday (Monday through Friday). Freight train counts are averages between the minimum and maximum volumes of Proposed Future Year (2040) daily freight train totals for the line segments shown above, as published in the *California State Rail Plan*, Appendix A.4, Table 20 (Caltrans 2018). Passenger and commuter train counts are preliminary estimates interpreted from Metrolink Southern California Optimized Rail Expansion Program projections for service frequencies on various routes and services in the Western Section of the Program Corridor.

^a This is the Soto interlocking (Milepost 144.4) in Los Angeles.

Caltrans=California Department of Transportation; LAUS=Los Angeles Union Station; SCRRA=Southern California Regional Rail Authority; UP=Union Pacific Railroad

Eastern Section

UP continues to realize capacity benefits from projects it has undertaken in Southern California over the past 2 decades, including an initiative to construct a second main line track on 760 miles of its Sunset Route between Colton, California, and El Paso, Texas. UP also continues to benefit from the 2013 completion of the Colton Crossing Railroad Grade Separation Project, which grade-separated

the crossing of UP’s Yuma Subdivision and BNSF’s San Bernardino Subdivision in Colton. UP has not provided information about any additional programmed or funded capacity expansion projects within the Eastern Section of the Program Corridor.

The No Build Alternative includes forecast growth in freight traffic on UP’s Yuma Subdivision. The *California State Rail Plan* (Caltrans 2018) anticipates that rail intermodal traffic in California will increase at a compound annual growth rate of 2.9 percent through 2040 and that rail carload traffic will increase at a compound annual growth rate of 1.7 percent through 2040, which could add approximately 50 additional freight trains to UP’s Yuma Subdivision. This growth forecast is consistent with growth projections provided by UP for computerized rail operations modeling simulations undertaken by RCTC for the Program.

Table 2-10 summarizes the Opening Year (2024) average daily train frequencies along the Eastern Section of the Program Corridor under the No Build Alternative.

Table 2-10. Eastern Section No Build Alternative Opening Year (2024) Daily Train Operations in the Program Corridor (Average One-Way Trips)

Endpoints	Intercity Passenger One-way Train Trips	Commuter One-way Train Trips	Freight One-way Train Trips	Total Average 2024 Daily Volume of Trains
Eastern Section (UP – Host Railroad; Additional Operator – Amtrak)				
Colton-Coachella	1	0	49	50

Notes:

Daily train counts represent revenue train movements on a weekday (Monday through Friday). Freight train counts are 2.7% compound annual growth increases to Opening Year (2024) from Existing Year (2018) freight train average daily volumes that were based on Base Year (2013) daily freight train totals for the line segments shown above, as published in the *California State Rail Plan*, Appendix A.4, Table 20 (Caltrans 2018). Passenger and commuter train counts are based on train frequency increases associated with completion of the Third Main Line Track Project on BNSF between Los Angeles and Fullerton, and Existing Year (2018) or previously programmed frequencies on other line segments.

Caltrans=California Department of Transportation; UP=Union Pacific Railroad

Table 2-11 summarizes the Future Year (2044) average daily train frequencies along the Eastern Section of the Program Corridor under the No Build Alternative.

Table 2-11. Eastern Section No Build Alternative Opening Year (2044) Daily Train Operations in the Program Corridor (Average One-Way Trips)

Endpoints	California High-Speed Rail Authority One-way Train Trips	Intercity Passenger One-way Train Trips	Commuter One-way Train Trips	Freight One-way Train Trips	Total Average 2044 Daily Volume of Trains
Eastern Section (UP – Host Railroad; Additional Operator – Amtrak)					
Colton-Coachella	0	1	0	88	89

Notes:

Daily train counts represent revenue train movements on a weekday (Monday through Friday). Freight train counts for Opening Year (2044) utilized averages between the minimum and maximum volumes of Horizon Year (2040) daily freight train totals for the line segments shown above, as published in the *California State Rail Plan*, Appendix A.4, Table 20 (Caltrans 2018).

Caltrans=California Department of Transportation; UP=Union Pacific Railroad

As described in detail above, under the No Build Alternative, no new growth in existing passenger services or new passenger services providing regional linkages in the Eastern Section of the Program Corridor are programmed or funded for implementation at this time.

2.3.2 Build Alternative Options 1, 2, and 3

As discussed above and summarized in Table 2-3, only Route Alternative 1 in the Western Section of the Program Corridor was considered reasonable and feasible after evaluation under the two-stage alternatives screening process. Therefore, for purposes of analysis in this Tier 1/Program EIS/EIR, Route Alternative 1 in the Western Section of the Program Corridor is the route alignment for all Build Alternative Options. This Western Section route alignment is summarized in Table 2-12 and shown on Figure 2-4.

For the Eastern Section of the Program Corridor, three Build Alternative Options are being considered for analysis. Build Alternative Option 1 and Build Alternative Option 2 were developed based on the findings in the 2016 AA Report. Build Alternative Option 3 was recommended for inclusion by FRA during a review of a rail operations sensitivity test conducted in summer 2019. These Eastern Section Build Alternative Options are summarized in Table 2-12 and shown on Figure 2-5 and Figure 2-6.

Table 2-12. Summary of Build Alternative Options

Build Alternative Option	Western Section	Eastern Section
<p>Build Alternative Option 1 (Coachella Terminus): 144-mile Program Corridor</p>	<p>The Western Section consists of a 68-mile segment along the existing BNSF San Bernardino Subdivision corridor between LAUS and the City of Colton (Figure 2-4). BNSF’s San Bernardino Subdivision is between Colton and Control Point Soto (the interlocking Milepost 144.4 in Los Angeles), a distance of approximately 63 miles. Metro’s River Subdivision, operated by SCRRA, is between Control Point Soto and LAUS, a distance of approximately 5 miles.</p>	<p>The Eastern Section consists of a 76-mile segment along the existing UP Yuma Subdivision corridor between the Cities of Colton and Coachella (Figure 2-5). Under Build Alternative Option 1, five new potential station areas are identified (to allow up to six stations), and a third track is proposed along the entire Eastern Section of the Program Corridor.</p>
<p>Build Alternative Option 2 (Indio Terminus): 140.25-mile Program Corridor</p>	<p>The Western Section consists of a 68-mile segment along the existing BNSF San Bernardino Subdivision corridor between LAUS and the City of Colton (Figure 2-4). BNSF’s San Bernardino Subdivision is between Colton and Control Point Soto (the interlocking Milepost 144.4 in Los Angeles), a distance of approximately 63 miles. Metro’s River Subdivision, operated by SCRRA, is between Control Point Soto and LAUS, a distance of approximately 5 miles.</p>	<p>The Eastern Section consists of a 72.25-mile segment along the existing UP Yuma Subdivision corridor between the Cities of Colton and Indio (Figure 2-5). Under Build Alternative Option 2, four new potential station areas are identified (to allow up to five stations), and a third track is proposed along the entire Eastern Section of the Program Corridor.</p>

Build Alternative Option	Western Section	Eastern Section
<p>Build Alternative Option 3 (Indio Terminus with Limited Third Track): 140.25-mile Program Corridor</p>	<p>The Western Section consists of a 68-mile segment along the existing BNSF San Bernardino Subdivision corridor between LAUS and the City of Colton (Figure 2-4). BNSF’s San Bernardino Subdivision is between Colton and Control Point Soto (the interlocking Milepost 144.4 in Los Angeles), a distance of approximately 63 miles. Metro’s River Subdivision, operated by SCRRA, is between Control Point Soto and LAUS, a distance of approximately 5 miles.</p>	<p>The Eastern Section consists of a 72.25-mile segment along the existing UP Yuma Subdivision corridor between the Cities of Colton and Indio (Figure 2-5). Under Build Alternative Option 3, four new potential station areas are identified (to allow up to five stations), and a third track is proposed between the City of Colton and the northern boundary of the potential Mid-Valley Station Area.^a</p>

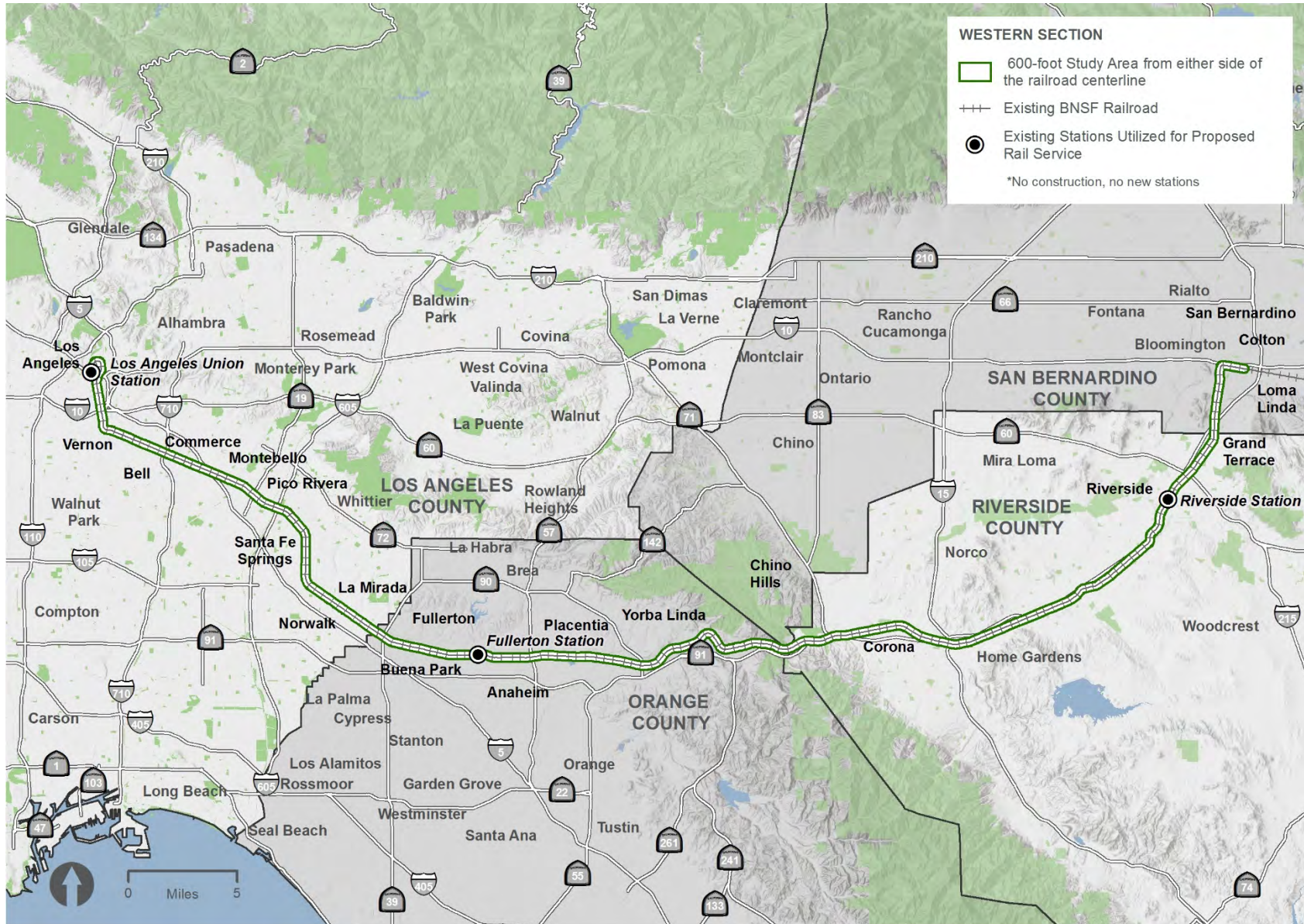
Notes:

^a The third track under Build Alternative Option 3 would stop at the northern boundaries of the potential Mid-Valley Station Area. Any improvements that may be required to transition from a third track to a second track would occur within the larger footprint of the potential Mid-Valley Station Area.

LAUS=Los Angeles Union Station; Metro=Los Angeles County Metropolitan Transportation Authority;

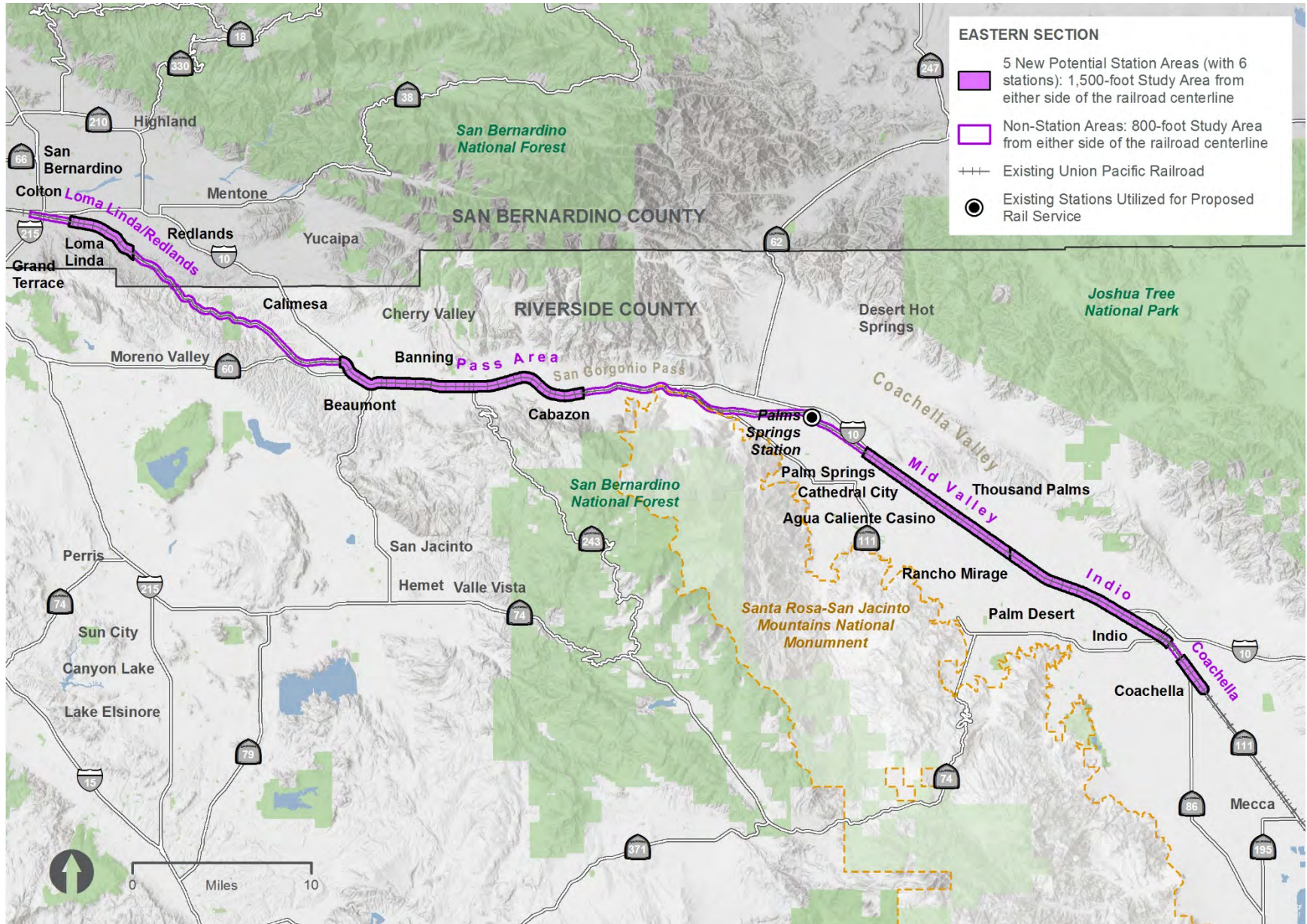
SCRRA=Southern California Regional Rail Authority; UP=Union Pacific Railroad

Figure 2-4. Western Section of the Program Corridor (Build Alternative Options 1, 2, and 3)



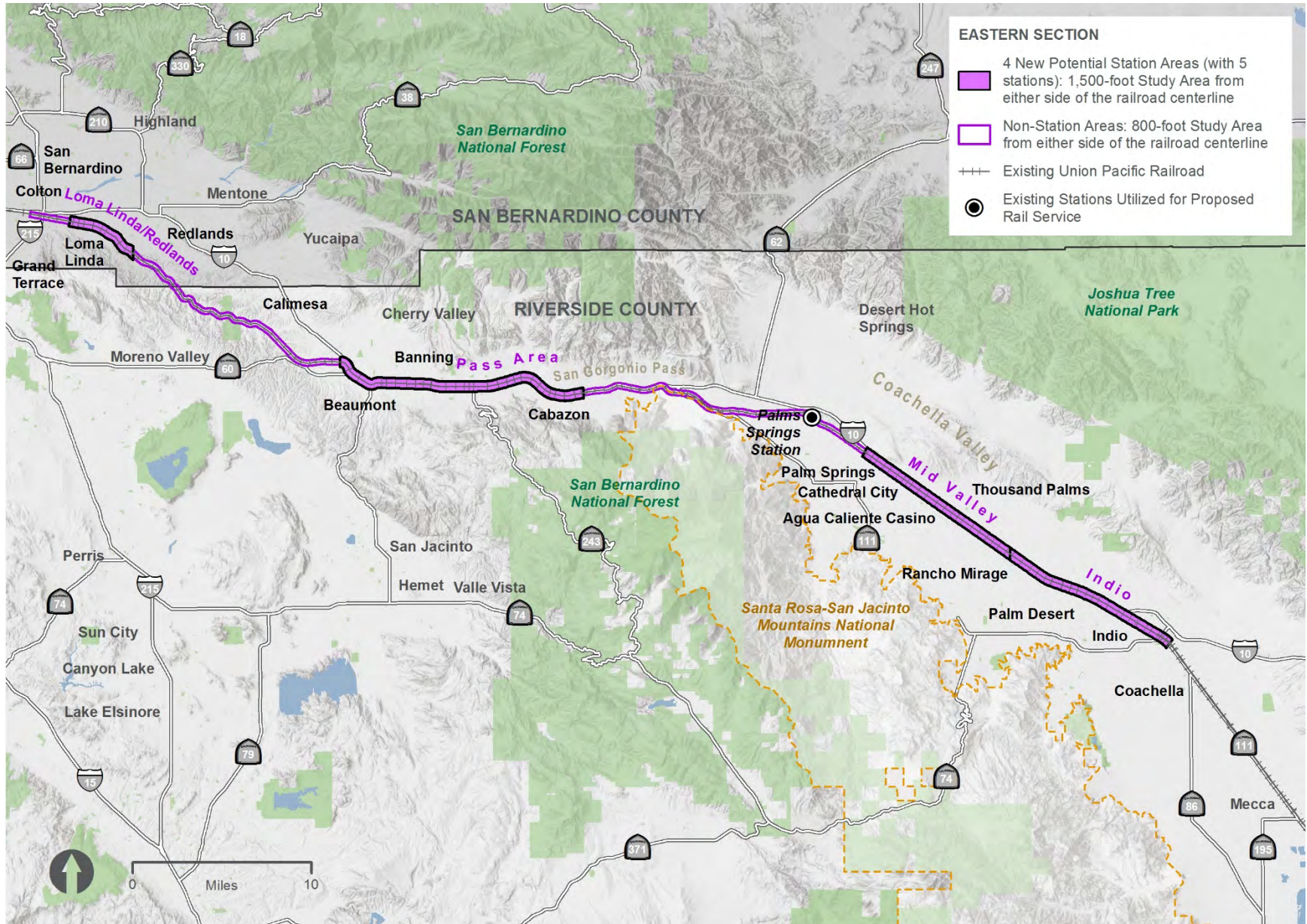
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Figure 2-5. Eastern Section of the Program Corridor (Build Alternative Option 1)



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Figure 2-6. Eastern Section of the Program Corridor (Build Alternative Options 2 and 3)



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Under all Build Alternative Options, existing rail infrastructure would be used in the Western Section of the Program Corridor, and no additional railroad infrastructure improvements would be required. LAUS would serve as the western terminus, while existing stations in the Cities of Fullerton and Riverside would be utilized to support the proposed service. No new stations or improvements to existing stations would be required to accommodate the proposed service within the Western Section of the Program Corridor. As shown on Figure 2-4, the Tier 1/Program EIS/EIR Study Area for the Western Section of the Program Corridor encompasses a 600-foot buffer from either side of the railroad centerline.

As part of the SDP and Tier 1/Program EIS/EIR process, rail operations simulation modeling is being conducted to identify potential infrastructure needs within the Eastern Section of the Program Corridor. Upon completion of the SDP and the Tier 1/Program EIS/EIR process, the specific infrastructure improvements would be determined and refined through coordination and additional consultations with UP, RCTC, Caltrans, and FRA prior to Tier 2/Project-level analysis.³

All three Build Alternative Options propose the following potential new infrastructure improvements within the Eastern Section of the Program Corridor:

- **Station construction.** The Build Alternative Options all propose either five or six station locations. The 1,500-foot Tier 1/Program EIS/EIR Study Area for potential station areas facilitates a comprehensive Tier 1/Program-level evaluation that can be utilized to inform the future siting of stations along the Eastern Section of the Program Corridor. This could include, but is not limited to, identification of sensitive resources that should be avoided during Tier 2/Project-level environmental review (e.g., avoidance of 4(f) resources or wetlands). At the Tier 1/Program EIS/EIR level, finalization of this Tier 1/Program EIS/EIR and lead agency approvals would not clear construction in the Eastern Section of the Program Corridor. Completion of Tier 2/Project-level environmental review would be required prior to implementation of site-specific infrastructure improvements, including station locations.

³ The Tier 2 process does not automatically follow the Tier 1 process, rather a project would be defined based on the Tier 1/Program Environmental Impact Statement (EIS)/Environmental Impact Report (EIR) broad project scope and funded at that time. The Tier 2 process would be a separate environmental document and could be funded and led by an agency other than the Federal Railroad Administration (FRA) and Riverside County Transportation Commission (RCTC), depending upon the source of funding.

- **Station tracks:** The station tracks improvements would consist of the construction of new controlled track sidings that augment operational flexibility by creating a location off of the existing main line tracks that would allow passenger trains to stop for the boarding and unloading of passengers at station platforms, thereby reducing rail traffic congestion on the main line tracks. Station tracks would be approximately 1 mile or less in length and located at or near proposed station locations. The station tracks could include, but not be limited to, the following components and/or construction requirements:
 - Grading for the additional track, turnout construction pads, and signal berms
 - Drainage improvements that may include culvert extensions and new standalone bridge structures or modifications to existing bridges
 - Roadway overpass modifications or reconstruction, as well as pier protection for existing structures
 - Retaining walls at certain locations to contain the improvements within the UP ROW
 - Existing at-grade crossings modifications to allow for the placement of an additional crossing surface for the new tracks and relocation or replacement of automatic warning devices
 - UP-standard track sections, with track centers of 20 feet or more, using new continuously welded rail, as well as signal and communication infrastructure upgraded and augmented, as required
- **Third main track.** The Build Alternative Options all propose a third main line track to augment the existing two-track main line along the Eastern Section of the Program Corridor. The extent of the third main line track varies by Build Alternative Option described below. The third main line track would be constructed primarily within the existing UP ROW; however, possible slopes could extend outside the existing UP ROW in certain locations. Many of the features described above for the station track scenario would also be constructed under this scenario, but the construction activities would not be restricted to railroad segments near the proposed stations. To facilitate operations, additional universal crossovers would be constructed, and existing crossover locations may be relocated due to topographic constraints. As previously mentioned, rail operations simulation modeling is being conducted as part of the SDP and Tier 1/Program EIS/EIR process to identify potential infrastructure improvement needs (including station tracks and third main line track scenarios, number of stations, and station locations). The third main line track scenario is consistent with the infrastructure improvements proposed through the rail operations modeling work to achieve 90 percent on-time performance of passenger rail service without

adding delay to freight rail service in the Eastern Section of the Program Corridor. Upon completion of the SDP and the Tier 1/Program EIS/EIR process, the specific infrastructure improvements would be determined and refined through coordination and additional consultations with UP, RCTC, Caltrans, and FRA prior to Tier 2/Project-level analysis.⁴

Potential infrastructure improvements could include the following:

- Various crossovers connecting the existing main line tracks to the new third main line track
- A new second Mt. Vernon connector track in Colton
- A new siding at Loma Linda to allow passenger trains to meet, thereby reducing delay
- A new railroad bridge across the Santa Ana River
- Additional infrastructure components throughout the Program Corridor including, but not limited to, wayside signals, drainage structures, and grade-separation structures

Build Alternative Option 1 (Coachella Terminus)

For purposes of this Tier 1/Program EIS/EIR, Build Alternative Option 1 assumes the following infrastructure improvements within the Eastern Section of the Program Corridor:

- **Station construction.** Build Alternative Option 1 identifies six potential station location areas in the Eastern Section of the Program Corridor where passenger rail stations could be located. Build Alternative Option 1 would use the existing station in the City of Palm Springs. Additionally, up to five new potential stations could be constructed in the following areas: 1) Loma Linda/Redlands Area (serving the Cities of Loma Linda and Redlands), 2) the Pass Area (serving the communities of Beaumont, Banning, and Cabazon), 3) the Mid-Valley Area (serving the communities of Cathedral City, Thousand Palms, the Agua Caliente Casino area, Rancho Mirage, and Palm Desert), 4) the City of Indio, and 5) Coachella as the eastern terminus of the Program Corridor.
- **Third main track:** A third main line track would augment the existing two main tracks along the Eastern Section of the Program Corridor to Coachella.

⁴ The Tier 2/Project-level process does not automatically follow the Tier 1/Program process, rather a project would be defined based on the Tier 1/Program EIS/EIR broad project scope and funded at that time. The Tier 2/Project-level process would be a separate environmental document and could be funded and led by an agency other than FRA and RCTC, depending upon the source of funding.

Build Alternative Option 2 (Indio Terminus)

For purposes of this Tier 1/Program EIS/EIR, Build Alternative Option 2 assumes the following infrastructure improvements within the Eastern Section of the Program Corridor:

- **Station construction.** Build Alternative Option 2 identifies five potential station location areas in the Eastern Section of the Program Corridor where passenger rail stations could be located. Build Alternative Option 2 would use the existing station in the City of Palm Springs. Additionally, up to four new potential stations could be constructed in the following areas: 1) Loma Linda/Redlands Area (serving the Cities of Loma Linda and Redlands), 2) the Pass Area (serving the communities of Beaumont, Banning, and Cabazon), 3) the Mid-Valley Area (serving the communities of Cathedral City, Thousand Palms, the Agua Caliente Casino area, Rancho Mirage, and Palm Desert), and 4) the City of Indio as the eastern terminus of the Program Corridor.
- **Third main track:** A third main line track would augment the existing two main tracks along the Eastern Section of the Program Corridor to Indio.

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

For purposes of this Tier 1/Program EIS/EIR, Build Alternative Option 3 assumes the following infrastructure improvements within the Eastern Section of the Program Corridor:

- **Station construction.** Build Alternative Option 3 identifies five potential station location areas in the Eastern Section of the Program Corridor where passenger rail stations could be located. Build Alternative Option 3 would use the existing station in the City of Palm Springs. Additionally, up to four new potential stations could be constructed in the following areas: 1) Loma Linda/Redlands Area (serving the Cities of Loma Linda and Redlands), 2) the Pass Area (serving the communities of Beaumont, Banning, and Cabazon), 3) the Mid-Valley Area (serving the communities of Cathedral City, Thousand Palms, the Agua Caliente Casino area, Rancho Mirage, and Palm Desert), and 4) the City of Indio as the eastern terminus of the Program Corridor.
- **Third main track:** A third main line track would augment the existing two main tracks along the Eastern Section of the Program Corridor to the proposed Mid-Valley Station Area.

FRA recommended Build Alternative Option 3 after a review of a rail operations sensitivity test conducted in summer 2019 that suggested it might be possible, under an operational scenario where Indio was the eastern terminus and five station stops were made east of Colton, to achieve the Program's performance thresholds without construction of a third main line track in a segment of the Eastern Section of the Program Corridor between the potential Mid-Valley and Indio Station Areas. For purposes of identifying the full range of the Program's potential impacts in this Tier 1/Program EIS/EIR, these details have been incorporated as part of Build Alternative Option 3.

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3 Environmental Analysis, Consequences, and Mitigation

The purpose of this chapter is to describe existing environmental baseline conditions in the areas that would be affected by the Build Alternative Options and the No Build Alternative, evaluate potential environmental effects or impacts associated with the No Build Alternative and with constructing and operating the Build Alternative Options, and present potential Tier 1/Program EIS/EIR mitigation strategies to avoid or reduce those effects or impacts under a Tier 2/Project-level analysis.

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3.1 Introduction to Environmental Analysis

This section provides an overview of the environmental analysis and presents the format for the environmental analysis in each topical section.

3.1.1 Environmental Topics Included in the Analysis

The Tier 1/Program EIS/EIR evaluation addresses broad questions and likely environmental effects within the Tier 1/Program EIS/EIR Study Area including, but not limited to, evaluation of the type of services being proposed and identification of major infrastructure components based on conceptual engineering and rail operations simulation conducted as part of the SDP process. The Tier 1/Program EIS/EIR, along with the concurrent preparation of the SDP, are the first steps in the tiered environmental review process. The Tier 1/Program EIS/EIR provides a service-level evaluation¹ and identifies areas of effect and resources that could be affected within the context of a resource specific study area. Chapter 3, Environmental Analysis, Consequences, and Mitigation, provides an analysis of the potential effects of the proposed Program. Sections 3.2 through 3.16 discuss the environmental effects that may result with approval and implementation of the proposed Program, and where potential effects are identified, present potential Tier-1/Program-level mitigation strategies to avoid or reduce those effects under a Tier 2/Project-level analysis (Section 1.2, Intended Uses of the Tier 1/Program EIS/EIR).

The following environmental resource area sections are included in Chapter 3:

- NEPA and CEQA analysis:
 - 3.2, Land Use and Planning (including agricultural and forestry resources)
 - 3.3, Transportation
 - 3.4, Visual Quality and Aesthetics
 - 3.5, Air Quality and Greenhouse Gases
 - 3.6, Noise and Vibration
 - 3.7, Jurisdictional Waters and Wetland Resources
 - 3.8, Biological Resources
 - 3.9, Floodplains, Hydrology, and Water Quality (including watersheds)

¹ A service-level evaluation examines a conceptual level of design without a specific track alignment or station site. For purposes of this Tier 1/Program EIS/EIR, the service-level evaluation is needed as the route of the future passenger rail system must first be considered in its regional context, as it would influence roadway networks, future planning processes, and environmental issues spanning portions of three counties, numerous jurisdictions, and multiple independent planning processes. Site-specific effects and impacts would be analyzed during the Tier 2/Project-level process after design details are known.

- 3.10, Geology, Soils, Seismicity, and Paleontological Resources (including mineral resources)
- 3.11, Hazards and Hazardous Materials
- 3.12, Public Utilities and Energy
- 3.13, Cultural Resources
- 3.14, Parklands and Community Services
- NEPA analysis:
 - 3.15, Safety and Security
 - 3.16, Socioeconomics and Communities Affected

Section 3.17 provides the analysis of cumulative effects based on the Tier 1/Program EIS/EIR findings and potential effects identified in the preceding sections in Chapter 3. Chapter 4 includes an evaluation of potential environmental justice effects, and Chapter 5 includes the Section 4(f)/6(f) discussion. Chapter 6 discusses other CEQA statutory considerations, Chapter 7 is the evaluation of alternatives, and Chapter 8 includes public and agency outreach efforts.

3.1.2 Environmental Topics Not Included in the Evaluation

Environmental resource areas not included in this Tier 1/Program EIS/EIR evaluation include the following:

- NEPA:
 - Coastal zone management: The Program would not be located within a coastal zone; therefore, it would not be subject to the Coastal Zone Management Act.

3.1.3 Format and Content Used in the Evaluation

For each environmental issue area considered in Chapter 3, the basic format and content for the environmental evaluation is as follows:

Introduction: This section provides a brief summary of the environmental resource area to be analyzed.

Regulatory Framework: This discussion describes the regulatory context of the environmental resource area being analyzed, including federal, state, regional, and local regulations, policies, and laws relevant to the Program.

Methods for Evaluating Environmental Effects: This discussion describes the methodology and/or assumptions used to characterize existing environmental conditions and evaluate the potential for effects on the existing human and natural environment during construction and

operation of the Program. Information includes data sources used and related environmental issue areas.

Affected Environment: This discussion provides a description of the existing physical environment and baseline setting for each environmental issue area, in accordance with NEPA regulations (40 CFR Part 1502.10) and 14 CCR Section 15125. For the purpose of this document and pursuant to the CEQA Guidelines (Section 15125(a)), the environmental setting is used to determine the impacts associated with the Build Alternative Options and is based on the environmental conditions that existed at the time the NOP was published. The baseline physical conditions, as required under CEQA, are applied similarly under NEPA to establish the affected environment. This approach is used to avoid confusion that might result from using different baselines for CEQA and NEPA purposes.

The information contained in the affected environment section uses data sources described in each resource section. The Tier 1/Program EIS/EIR Study Area was combined with geographic information system (GIS) overlays to identify resources that could be affected by the Program, with resources identified on a broad scale using available mapping information.

For the Western Section, the Tier 1/Program EIS/EIR Study Area extends up to 600 feet from either side of the existing railroad centerline. For the Eastern Section, the Tier 1/Program EIS/EIR Study Area for station-related infrastructure improvements extends up to 1,000 feet from either side of the centerline, plus a 500-foot buffer for the assessment of indirect impacts, for a total Tier 1/Program EIS/EIR Study Area of 1,500 feet from either side of the centerline at each of the individual station location areas. The remaining portion of the Eastern Section Tier 1/Program EIS/EIR Study Area encompasses up to 300 feet from the railroad centerline to include non-station-related infrastructure improvements, plus a 500-foot buffer for the assessment of indirect impacts, for a total Tier 1/Program EIS/EIR Study Area of 800 feet from the railroad centerline.

For purposes of cultural resources analysis, a Tier 1/Program EIS/EIR Cultural Study Area was developed to identify potential archaeological, historic, and tribal resources within the area. For the Western Section, the Tier 1/Program EIS/EIR Cultural Study Area extends up to 600 feet from either side of the existing railroad centerline. For the Eastern Section, the Tier 1/Program EIS/EIR Cultural Study Area extends up to 0.25 mile from either side of the centerline for the entire Eastern Section.

For the purposes of the socioeconomic and community analysis, the Tier 1/Program EIS/EIR Study Area for the socioeconomic evaluation encompasses 0.5 mile centered on the railroad centerline (0.25 mile on either side).

Environmental Consequences: Changes that would result from the Build Alternative Options were evaluated relative to the affected environment and existing environmental conditions within the Tier 1/Program EIS/EIR Study Area, as defined for each environmental issue area.

The discussion of environmental consequences is divided into a Western Section and an Eastern Section and further defined to distinguish effects related to construction and operation of the Program. Subheadings are used, where appropriate, to transition between major topics or sub-issues.

Each Build Alternative Option is compared with other Build Alternative Options within the same geographical sections, as well as with the No Build Alternative. The intensity of an effect as a result of the Build Alternative Options are characterized as negligible, moderate, or substantial when compared with the No Build Alternative. For comparative analysis, these terms are defined as follows:

- Negligible-intensity effects from construction and operation of a Build Alternative Option are those that would have no or few effects on resources when compared with existing conditions.
- Moderate-intensity effects from construction and operation of a Build Alternative Option would have a noticeable effect on resources but would not have a substantial adverse permanent effect on resources.
- Substantial-intensity effects would be long term or permanent and would have a noticeable, inevitable effect on resources within the Tier 1/Program EIS/EIR Study Area.

Available information from databases and data sources are used to assess the potential magnitude or intensity of the effects and summarized within this section.

NEPA Summary of Potential Effects: This section summarizes NEPA magnitude of effect conclusions for the Build Alternative Options based on the discussion in the environmental consequences section.

CEQA Summary of Potential Impacts: For the purposes of this analysis, Appendix G of the CEQA Guidelines serves as the thresholds of significance to evaluate the Program's impacts. This section summarizes CEQA significance conclusions for the Build Alternative Options based on the discussion in the environmental consequences section, proposed programmatic mitigation strategies to reduce, avoid, or minimize the potential impact, and the significance determination after mitigation strategies are applied.

Avoidance, Minimization, and Mitigation Strategies: This section identifies proposed programmatic mitigation strategies for further consideration in the Tier 2/Project-level analysis.

3.2 Land Use and Planning

3.2.1 Introduction

This section identifies the land use distribution within the Tier 1/Program EIS/EIR Study Area and provides an evaluation of land use-related effects associated with the No Build Alternative and Build Alternative Options. Information contained in this section is summarized from the *Land Use and Planning Technical Memorandum* (Appendix B of this Tier 1/Program EIS/EIR).

3.2.2 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 land use resources within the Tier 1/Program EIS/EIR Study Area and evaluated the potential impacts on those resources from implementation of the Build Alternative Options.

Federal

Federal Land Policy and Management Act

The Federal Land Policy and Management Act (43 CFR Part 35) provides for the proper management and protection of property and natural and cultural resources within areas under the jurisdiction of the Bureau of Land Management (BLM), including national monuments, federal recreation areas, and conservation areas. It establishes the regulations governing coordination and grants for ROWs that cross public lands managed by BLM.

Farmland Protection Policy Act

The Farmland Protection Policy Act (7 USC Sections 4201–4209 and 7 CFR Part 658) was established to minimize the conversion of farmland to non-agricultural uses as part of a federal undertaking. The Farmland Protection Policy Act was intended to assure that federal programs are administered in a way that is compatible with state, local, and private programs to protect farmland. Farmland subject to the Farmland Protection Policy Act includes prime or unique farmlands or farmland that is determined by a state or local agency to be farmland of statewide or local importance. Under 7 CFR Part 658.1, prime farmland is defined as “land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and

oilseed crops, and is also available for these uses.” Unique farmland is “land other than prime farmland that is used for the production of specific high value food and fiber crops.”

State

California Farmland Mapping and Monitoring Program

The California Department of Conservation inventories and categorizes farmlands throughout the state as part of its Farmland Mapping and Monitoring Program. The Farmland Mapping and Monitoring Program classifications include:

- Prime Farmland (P): Farmland with the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.
- Farmland of Statewide Importance (S): Farmland similar to prime farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.
- Unique Farmland (U): Farmland of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the 4 years prior to the mapping date.
- Farmland of Local Importance (L): Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.
- Grazing Land (G): Land on which the existing vegetation is suited to the grazing of livestock.
- Urban and Built-up Land (D): Land occupied by structures with a building density of at least 1 unit to 1.5 acre or approximately 6 structures to a 10-acre parcel. This land is used for residential, industrial, commercial, construction, institutional, public administration, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.
- Other Land (X): Land not included in any other mapping category.

California Land Conservation Act (Williamson Act)

In 1965, the state enacted the California Land Conservation Act, more commonly known as the Williamson Act (Government Code Section 51230 et seq.). The Williamson Act provides tax incentives for landowners who enter into contracts with the local government for long-term use restrictions on agricultural and open space land for qualifying properties. Property owners commit their land to farming for a minimum of 10 years and in return receive tax benefits based on their agricultural production rather than on the property's market value. Contracts are automatically renewed unless a notice of non-renewal is issued.

Regional

Southern California Association of Governments 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy

The SCAG 2016-2040 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS), adopted in April 2016, presents the long-range transportation and land use plan and transportation vision for Los Angeles, Orange, San Bernardino, Imperial, Riverside, and Ventura Counties with the overarching goal of integrating strategies for land use and transportation (SCAG 2016). The following goals and policies from SCAG's RTP/SCS are applicable to the Program:

- Maximize mobility and accessibility for all people and goods in the region
- Ensure travel safety and reliability for all people and goods in the region
- Preserve and ensure a sustainable regional transportation system
- Maximize the productivity of our transportation system
- Encourage land use and growth patterns that facilitate transit and active transportation

The RTP/SCS identifies priorities for transportation planning within the Southern California region, sets goals and policies, and identifies performance measures for transportation improvements to ensure that future projects are consistent with other planning goals for the area. It also presents an overall land use concept for the region, with increasing focus on densification of urban areas, as applicable in the Western Section of the Program development around transit stations and use of transit and active transportation.

County General Plans

Applicable elements of the general plans for the four counties the Build Alternative Options cross (Los Angeles County, Orange County, Riverside County, and San Bernardino County) are summarized in the *Land Use and Planning Technical Memorandum* (Appendix B of this Tier 1/Program EIS/EIR).

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.

3.2.3 Methods for Evaluating Environmental Effects

The methodology for this evaluation consists of using existing data to identify existing land uses, including agricultural and forest resources within the Tier 1/Program EIS/EIR Study Area for each Build Alternative Option and evaluating the potential level of effect that each Build Alternative Option could have if constructed.

For purposes of this Tier 1/Program EIS/EIR, agricultural lands are defined as lands that have been officially designated by a federal, state, or local agency for the purpose of farming or other agricultural uses.

For this evaluation, analysis of land use effects focuses on areas where existing land uses could be converted to transportation-related land uses. The general plans for Los Angeles, Orange, Riverside, and San Bernardino counties were reviewed to determine the Program's general consistency with land use and circulation goals and policies.

In a Tier 2/Project-level analysis, impacts would be analyzed quantitatively using more detailed analytical methods, such as field surveys, mapping of land use, and use of GIS overlays of land use resources with the defined Project footprint to quantify impacts. In addition, a subsequent Tier 2/Project-level analysis would include a more detailed impact analysis of potential agricultural land use areas, including site specific land evaluation and site assessment documentation. As part of the Tier 2/Project-level analysis, additional coordination with the applicable jurisdiction would be required to determine land resource impacts.

Tier 1/Program EIS/EIR Study Area

This service-level evaluation is limited to a desktop evaluation of the data sources described in Section 3.2.3. The Tier 1/Program EIS/EIR Study Area was combined with GIS overlays to identify

potential land use resources (such as agricultural or forest lands) that could be affected by the Program. These potential land use resources 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, of this Tier 1/Program EIS/EIR.

Data Sources

Land use data was compiled from publicly available electronic GIS data, which relies on local jurisdictions updating and inputting land use data into a publicly available GIS database. While some of the jurisdictions within the Tier 1/Program EIS/EIR Study Area have more recent existing or planned land use information than the SCAG data, others did not, or did not provide it publicly. SCAG consolidates and standardizes local land use data during preparation of its RTPs, making its land use data the most consistent for the Tier 1/Program EIS/EIR Study Area.

The existing land uses were primarily based on the 2008 SCAG GIS land use dataset, and the proposed land uses were primarily based on the 2012 SCAG GIS land use dataset. In addition to SCAG 2008 and 2012 land use information, the dataset was supplemented with InfoUSA 2008 employment data, 2005 to 2008 new construction data, and inputs from local jurisdictions in the SCAG region. This dataset was used because it includes the most consistent and comprehensive information available for all jurisdictions that was available during preparation of this analysis.

In addition to SCAG data, online GIS data available from the California Department of Conservation, the U.S. Department of the Interior, and a variety of other sources were used to identify agricultural and forest resources with the potential to occur within the Tier 1/Program EIS/EIR Study Area.

Specifically, the following data sources were reviewed:

- **Farmlands:** The California Important Farmland Finder dataset (California Department of Conservation 2020) was consulted.
- **Agricultural Preserve Lands:** To identify designated agricultural preserve lands or lands under the Williamson Act Program, data from the California Department of Conservation was consulted.
- **Forest Lands:** The U.S. Forest Service Land Ownership database was consulted.

Related Resources

This service-level evaluation incorporates data and analysis from related resources to contribute to the assessment of effects on land use and planning. These related resources are identified in Table 3.2-1.

Table 3.2-1. Related Resource Inputs for Land Use Resources

Resource	Input for Land Use Assessment
Parklands and Community Services (Section 3.14)	Supplemental information about parklands or recreational facilities including type, protection, ownership, and accessibility was used to inform the land use assessment.

3.2.4 Affected Environment

Existing and Future Land Uses

The Program Corridor crosses a large geographic area within Southern California, spanning a distance of 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 in a natural condition. 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 of the largest land use category.

Build Alternative Option 1 (Coachella Terminus)

Table 3.2-2 summarizes the existing and planned land uses within the Western Section of the Program Corridor under Build Alternative Option 1. As indicated in Table 3.2-2, the dominant existing land uses in the Western Section of the Program Corridor are transportation, communication, and utilities (32.5 percent); industrial (29.4 percent); and single-family residential (12.2 percent), which equals approximately 74 percent of total existing land uses. Based on anticipated development patterns for the area, distribution of future land uses would remain similar to existing conditions with the same three land use categories (transportation, communication, and utilities; industrial; and single-family residential) making up the dominant planned land uses within the Western Section of the Program Corridor.

Table 3.2-2. Western Section Existing and Planned Land Uses (Build Alternative Options 1, 2, and 3)

Land Use	Existing (acres)	Percent of Existing Total (%)	Planned (acres)	Percent of Planned Total (%)
Agriculture	61.6	0.6	0.0	0.0
Commercial services	1,169.1	11.6	661.4	6.5
Industrial	2,975.4	29.4	4,093.1	40.5
Mixed commercial and industrial	57.3	0.6	71.7	0.7
Mixed urban	10.1	0.1	0.0	0.0
Open space and recreation	208.2	2.1	733.7	7.3
Public facilities	0.0	0.0	366.3	3.6
Residential – multifamily	304.6	3.0	398.7	3.9
Residential – other	68.1	0.7	258.3	2.3
Residential – single family	1,230.0	12.2	1,228.0	12.1
Transportation, communications, utilities	3,283.8	32.5	2,295.8	22.7
Under construction	53.5	0.5	1.9	0.1
Vacant	687.6	6.8	0.0	0.0
Total	10,109.3	—	10,108.9	—

Table 3.2-3 summarizes the existing and planned land uses within the Eastern Section of the Program Corridor under Build Alternative Option 1. As indicated in Table 3.2-3, the dominant existing land uses for the Eastern Section of the Program Corridor are vacant land (40.2 percent); transportation, communication, and utilities (27.6 percent); and commercial (8.2 percent), which equals approximately 76 percent of total existing land uses. Based on anticipated development patterns for the area, future land uses in the Eastern Section of the Program Corridor would shift to transportation, communication, and utilities (21.6 percent); open space and recreation (19.7 percent); and single-family residential (17.7 percent) uses.

Table 3.2-3. Eastern Section Existing and Planned Land Uses (Build Alternative Option 1)

Land Use	Existing (acres)	Percent of Existing Total (%)	Planned (acres)	Percent of Planned Total (%)
Agriculture	1,460.3	6.7	119.2	0.6
Commercial services	1,773.3	8.2	2,374.2	11.0
Industrial	907.5	4.2	2,585.9	11.9
Mixed commercial and industrial	41.2	0.2	1,246.1	5.8
Mixed urban	0.0	0.0	312.1	0.0
Open space and recreation	748.3	3.5	4,268.2	19.7
Public facilities	0.0	0	403.4	1.9
Residential – multifamily	192.9	0.9	509.7	2.4
Residential – other	399.5	1.8	1,310.3	6.1
Residential – single family	1,193.9	5.5	3,836.2	17.7
Transportation, communications, utilities	5,967.7	27.6	4,685.2	21.6
Under construction	268.5	1.2	0.0	0.0
Vacant	8,697.5	40.2	0.2	0.0
Total	21,650.6	—	21,650.7	—

Build Alternative Option 2 (Indio Terminus)

Distribution of existing and planned land uses within the Western Section of the Program Corridor under Build Alternative Option 2 are the same as Build Alternative Option 1.

Table 3.2-4 summarizes the existing and planned land uses within the Eastern Section of the Program Corridor under Build Alternative Option 2. There are fewer acres of land within Build Alternative Option 2 because of the shorter route alignment and reduced station options.

As indicated in Table 3.2-4, the dominant existing land uses for the Eastern Section of the Program Corridor are vacant land (41.2 percent); transportation, communication, and utilities (27.6 percent); and commercial (8.0 percent), which equals approximately 76 percent of total existing land uses.

Based on anticipated development patterns for the area, the dominant future land uses for the Eastern Section of the Program Corridor would shift to transportation, communication, and utilities (22.0 percent); open space and recreation (20.6 percent); and single-family residential (17.3 percent) uses.

Table 3.2-4. Eastern Section Existing and Planned Land Uses (Build Alternative Options 2 and 3)

Land Use	Existing (acres)	Percent of Existing Total (%)	Planned (acres)	Percent of Planned Total (%)
Agriculture	1,239.9	6.0	119.2	0.6
Commercial services	1,648.0	8.0	2,186.9	10.6
Industrial	781.7	3.8	2,208.1	10.7
Mixed commercial and industrial	41.2	0.2	1,246.1	6.1
Mixed urban	0.0	0.0	312.1	1.5
Open space and recreation	740.9	3.6	4,243.7	20.6
Public facilities	0.0	0.0	376.8	1.8
Residential – multifamily	192.9	0.9	498.3	2.4
Residential – other	397.3	1.9	1,305.2	6.3
Residential – single family	1,100.3	5.3	3,570.1	17.3
Transportation, communications, utilities	5,683.4	27.6	4,518.6	22.0
Under construction	268.5	1.3	0.0	0.0
Vacant	8,480.7	41.2	0.2	0.0
Total	20,574.8	—	20,585.3	—

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

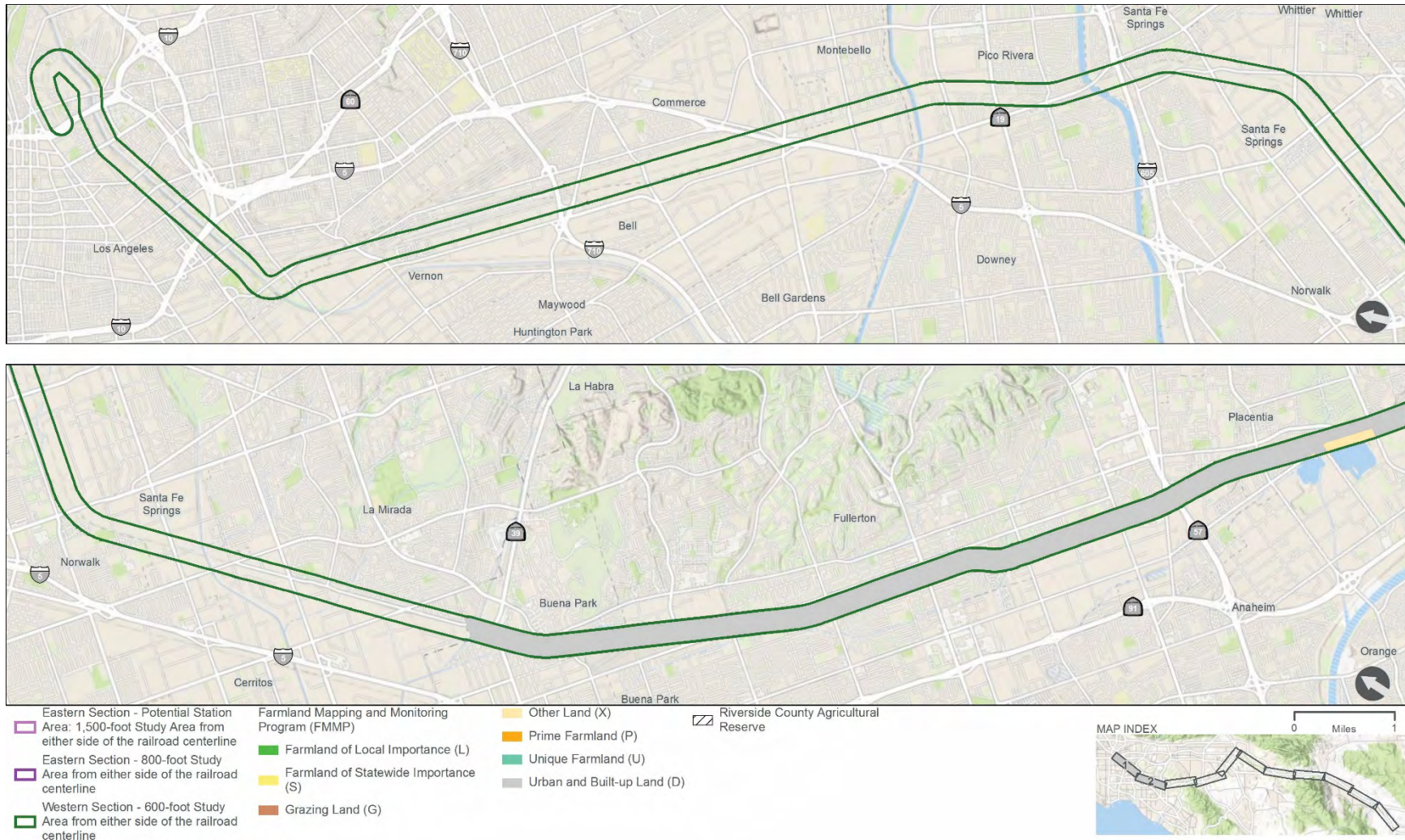
Distribution of existing and planned land uses within the Western Section of the Program Corridor under Build Alternative Option 3 are the same as Build Alternative Option 1. Existing and planned land uses within the Eastern Section of the Program Corridor under Build Alternative Option 3 are the same as Build Alternative Option 2.

Agricultural Resources

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 in a natural condition and designated for agricultural uses. The Eastern Section of the Program Corridor is less urbanized with some agricultural uses present. Figure 3.2-1 shows the Farmland Mapping and Monitoring Program designated land uses and agricultural preserve areas located within the Tier 1/Program EIS/EIR Study Area.

Figure 3.2-1. Farmland Mapping and Monitoring Program Classifications within the Tier 1/Program EIS/EIR

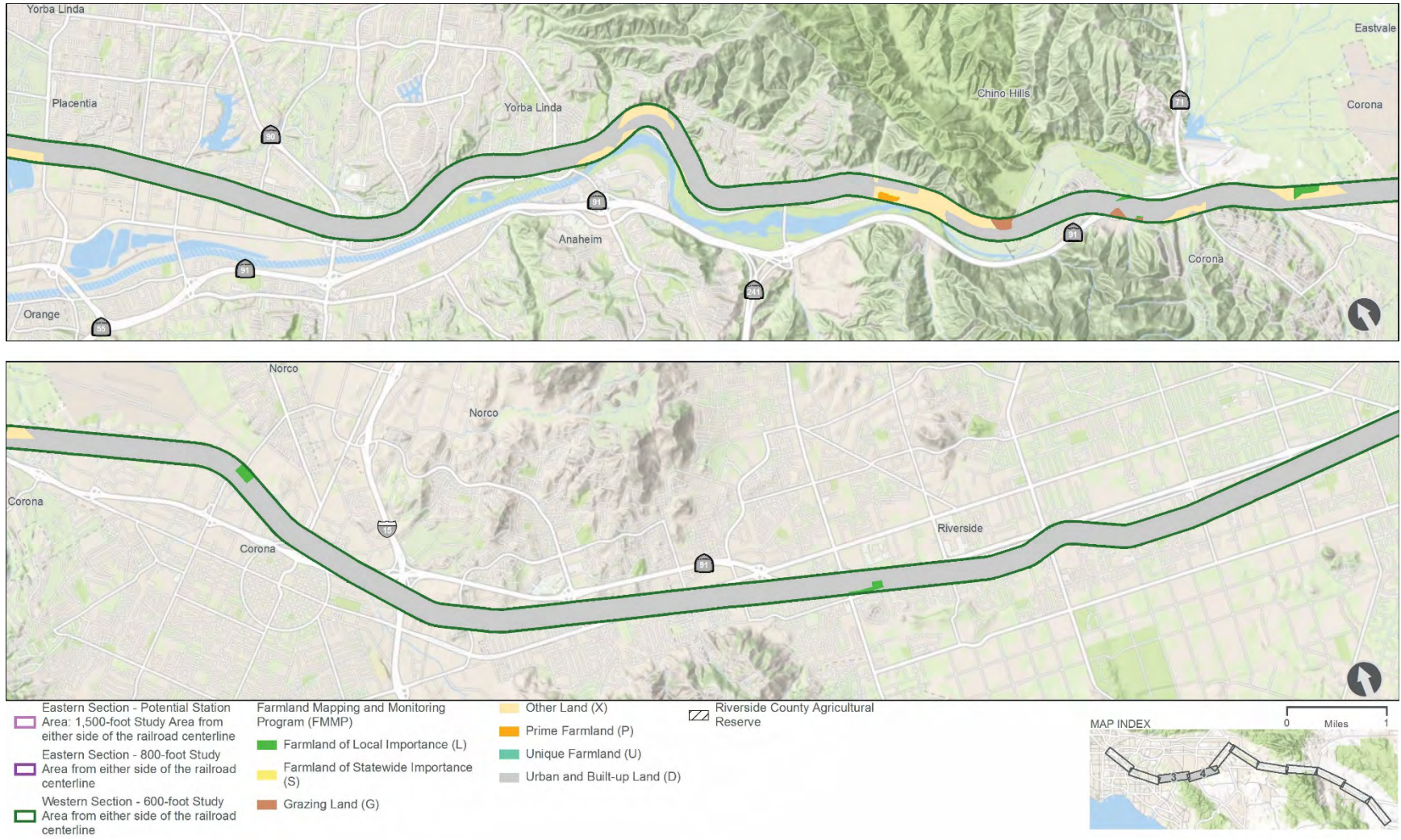
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Figure 3.2-1. Farmland Mapping and Monitoring Program Classifications within the Tier 1/Program EIS/EIR Study Area

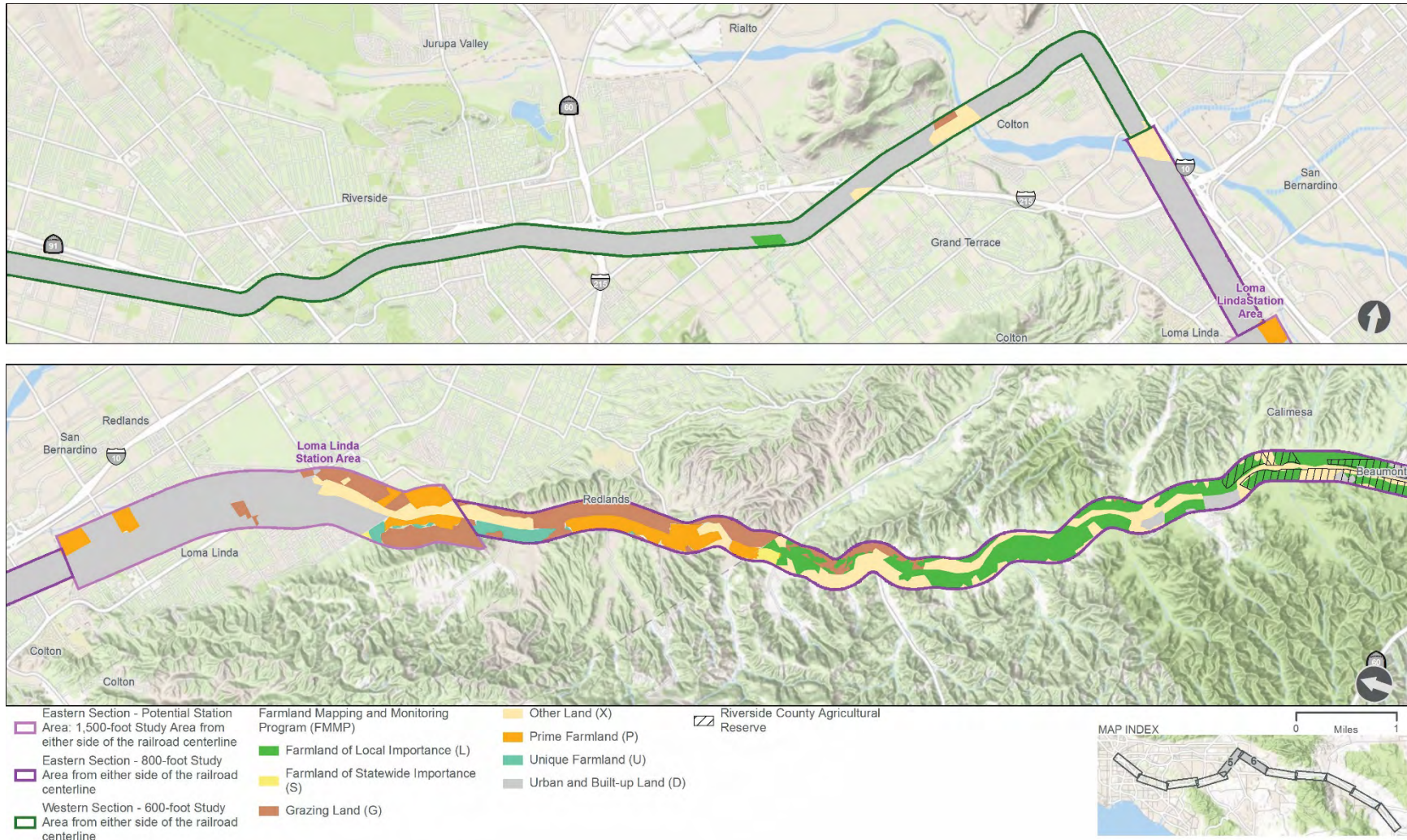
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Figure 3.2-1. Farmland Mapping and Monitoring Program Classifications within the Tier 1/Program EIS/EIR Study Area

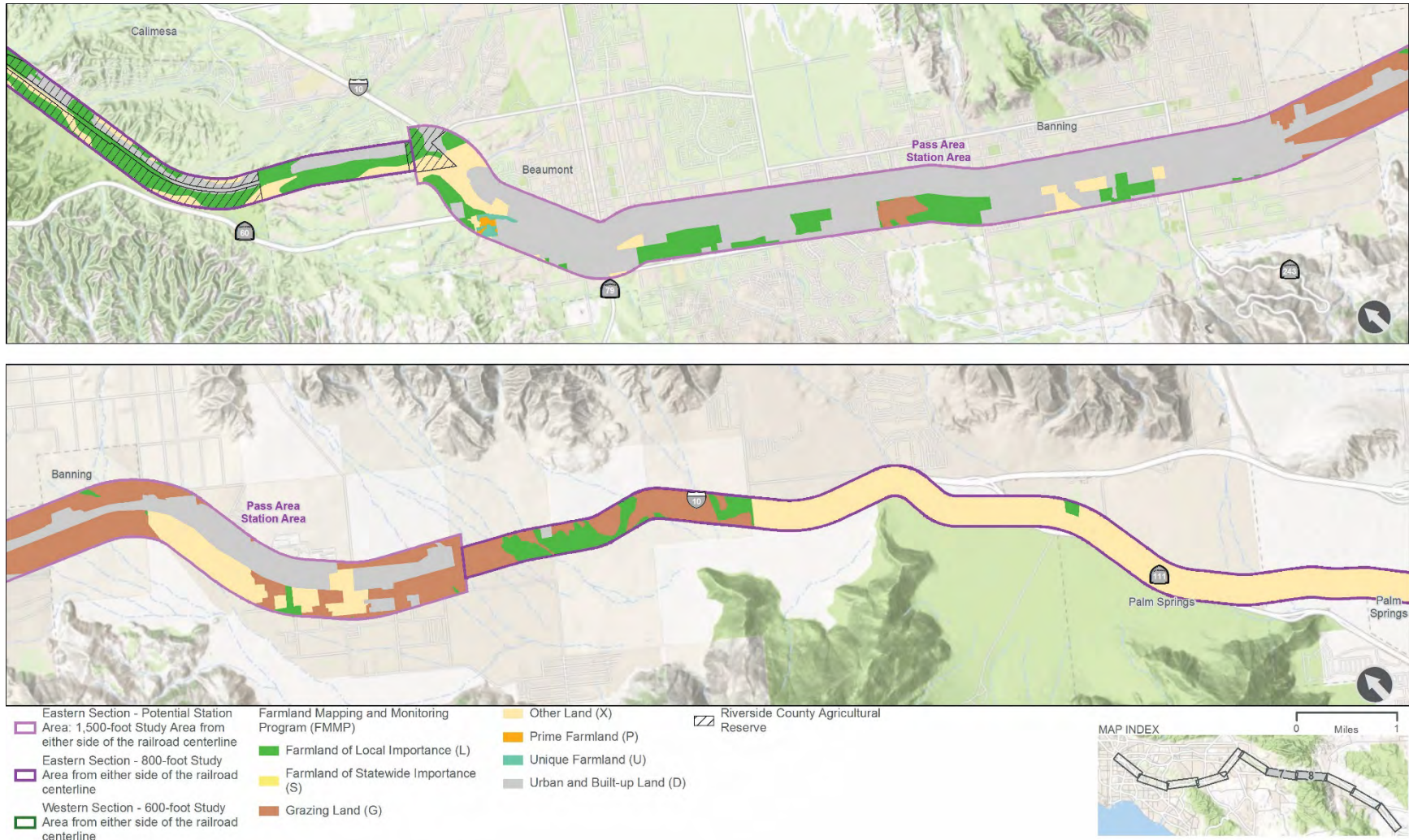
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Figure 3.2-1. Farmland Mapping and Monitoring Program Classifications within the Tier 1/Program EIS/EIR Study Area

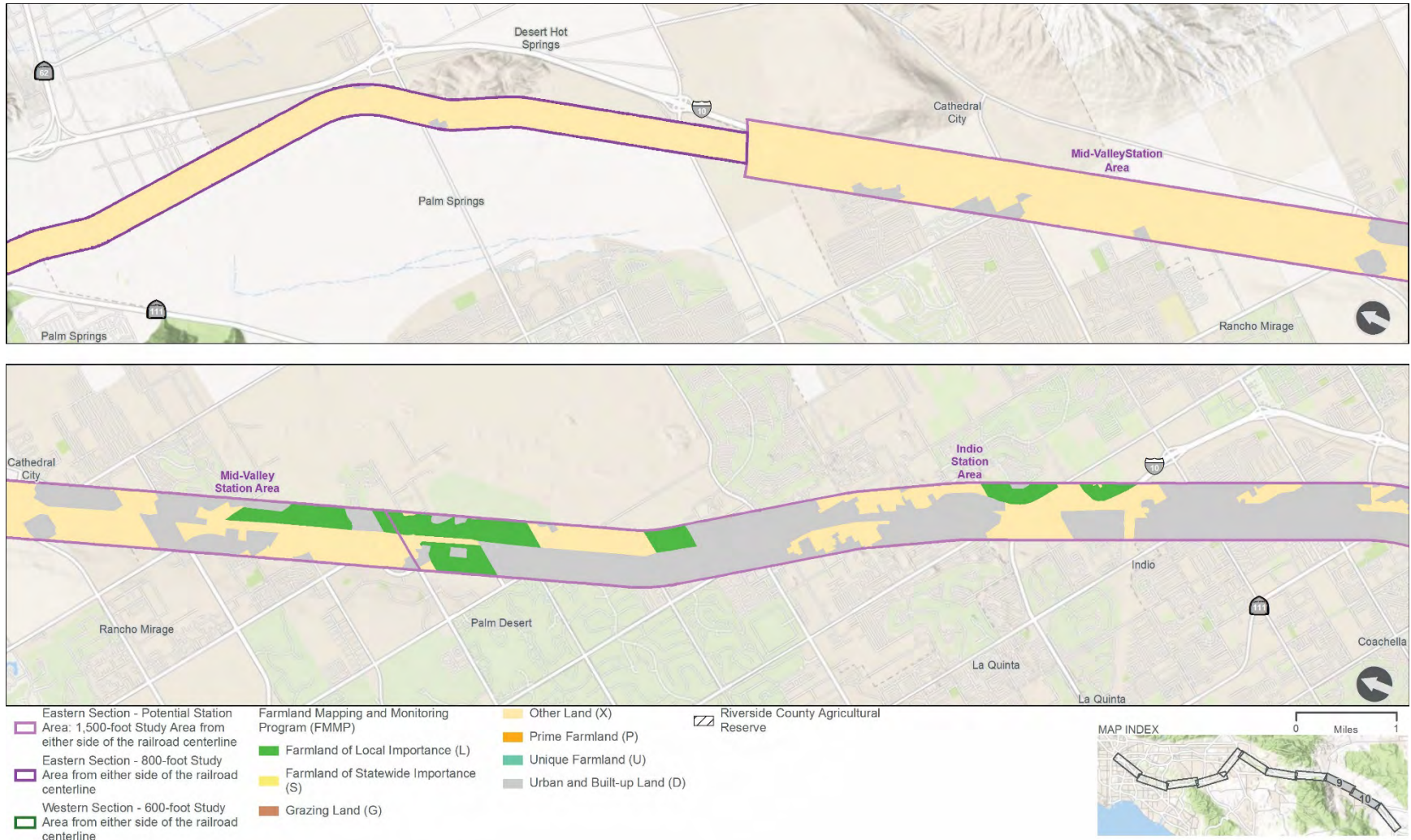
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Figure 3.2-1. Farmland Mapping and Monitoring Program Classifications within the Tier 1/Program EIS/EIR Study Area

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Figure 3.2-1. Farmland Mapping and Monitoring Program Classifications within the Tier 1/Program EIS/EIR Study Area

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Build Alternative Option 1 (Coachella Terminus)

Within the Western Section of Build Alternative Option 1, there are limited areas that are mapped for agricultural use. Of the land mapped for agricultural use, the largest is mapped as farmland of local importance (61.9 acres). The Western Section also includes other land mapped as prime farmland, farmland of statewide importance, and grazing land. The Western Section does not contain land that is considered part of an agricultural preserve or under a Williamson Act contract. Within the Eastern Section of Build Alternative Option 1, the largest type of agriculturally mapped land is farmland of local importance (2,623.9 acres). The Eastern Section also includes other land mapped as prime farmland, unique farmland, farmland of statewide importance, and grazing land. Unlike the Western Section, the Eastern Section passes through areas identified as part of an agricultural preserve or part of a Williamson Act contract. These areas are located in the non-station segment, between the Loma Linda Station Area and the Pass Area Station Area, and within a portion of the Pass Area Station Area. Table 3.2-5 provides a summary of agricultural resources within Build Alternative Option 1.

Table 3.2-5. Summary of Agricultural Resources (Build Alternative Option 1)

Agricultural Resource^a	Area of Agricultural Resource within Western Section (acres)	Area of Agricultural Resource within Eastern Section (acres)	Total Area of Agricultural Resource (acres)
Prime farmland	9.30	551.10	560.40
Unique farmland	0.00	96.70	96.70
Farmland of statewide importance	1.30	21.30	22.60
Farmland of local importance	61.90	2,562.00	2,623.90
Grazing land	35.60	1,887.60	1,923.20
Agricultural preserve ^b	0.00	760.82	760.82

Source: California Department of Conservation 2020

^a Farmland designations are identified as part of the California Department of Conservation Farmland Mapping and Monitoring Program.

^b Agricultural Preserves are considered Williamson Act area for purposes of CEQA and are a separate designation from the Farmland Mapping and Monitoring Program.

CEQA=California Environmental Quality Act

Build Alternative Option 2 (Indio Terminus)

The types of agricultural resources that could be impacted by Build Alternative Option 2 are the same as for Build Alternative Option 1; however, there are fewer acres of agricultural resources within Build Alternative Option 2 because of the shorter route alignment and reduced station options. Table 3.2-6 provides a summary of agricultural resources within Build Alternative Option 2.

Table 3.2-6. Summary of Agricultural Resources (Build Alternative Options 2 and 3)

Agricultural Resource ^a	Area of Agricultural Resource within Western Section (acres)	Area of Agricultural Resource within Eastern Section (acres)	Total Area of Agricultural Resource (acres)
Prime farmland	9.30	353.20	362.50
Unique farmland	0.00	96.70	96.70
Farmland of statewide importance	1.30	21.30	22.60
Farmland of local importance	61.90	2,488.00	2,549.90
Grazing land	35.60	1,887.60	1,923.20
Agricultural preserve ^b	0.00	760.82	760.82

Source: California Department of Conservation 2020

^a Farmland designations are identified as part of the California Department of Conservation Farmland Mapping and Monitoring Program.

^b Agricultural Preserves are considered Williamson Act area for purposes of CEQA and are a separate designation from the Farmland Mapping and Monitoring Program.

CEQA=California Environmental Quality Act

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

Agricultural resources within Build Alternative Option 3 are the same as Build Alternative Option 2.

Forestry Resources

Based on a review of the U.S. Forest Service Land Ownership database and Forest Service Geodata Clearinghouse (U.S. Department of Agriculture 2020), there are no U.S. Forest Service lands within the Tier 1/Program EIS/EIR Study Area.

3.2.5 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 land use and agricultural resources would be anticipated as a result of constructing any of the Build Alternative Options. Most effects on land use and agricultural resources would occur during construction, when land acquisitions could impact sensitive land uses or agricultural resources.

Impacts could also result from operation of any of the Build Alternative Options. New station areas could result in land use changes, such as transit-oriented development, which would introduce the potential for adjacent land to be developed. Changes in land use, such as induced growth from an expanded transportation system, are assessed in Section 3.17, Cumulative Effects, of this Tier 1/Program EIS/EIR. To accommodate a passenger rail system, areas within the Program Corridor may need to be rezoned through the local development process. This would depend on the specific locations of stations, current zoning, and the locations and size of rail infrastructure facilities.

Sensitive land uses and agricultural resources potentially affected by a future passenger rail system would be further identified as part of the Tier 2/Project-level environmental review process. Specific types and degrees of impacts on individual resources (such as ROW acquisition and impacts on a specific resource) would not be known until further design of rail facilities takes place.

No Build Alternative

The No Build Alternative, as described in Chapter 2, Program Alternatives, of this Tier 1/Program EIS/EIR, is used as the baseline for comparison. The No Build Alternative would not implement the Program associated with this service-level evaluation. Counties and cities in the Program Corridor would continue to grow, which would increase regional transportation demand. Therefore, the No Build Alternative assumes completion of those reasonably foreseeable transportation, development, and infrastructure projects that are already in progress; are programmed; or are included in the fiscally constrained RTP.

Under the No Build Alternative, passenger rail service between Coachella and Los Angeles would not be established and land would not be allocated for rail infrastructure or station facilities. This may prevent potential displacements of existing and planned land uses but would increase the likelihood for displacing land uses adjacent to existing highways such as I-10, SR 60, and SR 111, which would likely need to be widened to accommodate the projected demands for capacity as population in the region increases. Land uses adjacent to major highway corridors would likely be affected by

increased traffic congestion, which may include time delays and increased exposure to noise and vehicle emissions.

Build Alternative Options 1, 2, and 3

Land Use Consistency 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 or construction at existing 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 would be negligible because no additional construction activities would occur within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. The Eastern Section of the Build Alternative Options primarily fall within the jurisdictions of San Bernardino and Riverside counties and the cities/towns of Loma Linda, Redlands, Calimesa Beaumont, Banning, Palm Springs, Palm Desert, Desert Hot Springs, Cathedral City, La Quinta, Indio, and Coachella. Land use elements vary greatly among different jurisdictions' general plans. If a passenger rail system is constructed within the existing rail ROW, no ROW acquisitions would be required. However, the Tier 1/Program EIS/EIR Study Area allows for rail infrastructure and station facilities to be located beyond the limits of the existing rail ROW, which would require acquisition of land not designated for transportation. Which land uses would be affected by the future construction of a passenger rail system and to what extent cannot be determined at this time.

Since station locations have not yet been selected, land use consistency analyses would be required at the Tier 2/Project-level analysis to determine if the planned station facilities are consistent with the local general plan and/or municipal code (i.e., zoning). When compared with the No Build Alternative, effects would be moderate under the Build Alternative Options. 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 for Build Alternative Option 2 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 rail track 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. Operation of the Build Alternative Options would increase activity along existing rail tracks by an additional two daily round-trip intercity passenger trains through largely built-out urban areas. The Western Section would not require any land acquisition or redesignation/rezoning of any parcels, and as such, would be consistent with existing land use designations of the general plans. In addition, by increasing service options through the use of existing infrastructure, the Program would be consistent with policies that focus on maximizing transit options and encourage the use of existing infrastructure.

While the Build Alternative Options would result in an increase in train operations (up to four trains per day) within the Western Section, the existing infrastructure already includes sound barriers and other measures to reduce effects on adjacent sensitive uses, such as residential uses. Therefore, implementation of the Build Alternative Options in the Western Section of the Program Corridor would not conflict with policies related to context-sensitive design and would be consistent with existing plans and policies. When compared with the No Build Alternative, effects would be negligible under Build Alternative Options 1, 2, and 3.

Eastern Section. Land use elements vary greatly among different jurisdictions' general plans. Typically, land use goals relate to economic growth that promotes alternative transportation methods, infill development, maintaining buffers between urban and rural land uses, and sensitivity to the natural environment. In general, transportation elements include goals relating to improving circulation, enhancing public transit, supporting commuter rail service, and creating alternatives to automobile transportation. Many of the SCAG RTP/SCS and Riverside County and San Bernardino County General Plan policies applicable to the Build Alternative Options promote increasing transit options and passenger rail in the region, and Coachella Valley, specifically. The Eastern Section of the Program Corridor would connect Colton in the west to Coachella Valley in the east, consistent with policies of SCAG, Riverside County, and San Bernardino County. This connection would specifically be consistent with Policy C 13.1 of the Riverside County General Plan, which seeks to “support continued development and implementation of the RCTC Rail Program including new rail lines and stations, the proposed California High Speed Rail System with at least two stations in Riverside County, the Coachella Valley San Gorgonio Pass Intercity Rail Service, and the proposed Intercity Rail Corridor between Calexico and Los Angeles.”

Based on a Tier 1/Program EIS/EIR evaluation level, the Build Alternative Options are generally consistent with the transportation goals outlined in the general plans, comprehensive plans, and transportation plans, as well as policies from the SCAG RTP/SCS. General plan policies include

guidance for siting transit stops within community centers and major activity areas. These policies are intended to coordinate the location and scheduling of public transit routes, services, and facilities for better coordination with bus and rail transit systems. Specific sites for the new stations have not been identified for this Tier 1/Program EIS/EIR evaluation. During Tier 2/Project-level analysis, detailed and specific evaluation of land use compatibility with plans and programs would be completed once design details are known.

Community Division or Disruption 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, disruption (including division) to existing communities would be negligible because no additional construction activities would occur within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Within the Eastern Section of the Program Corridor, Build Alternative Option 1 would include the construction of infrastructure improvements, such as sidings, additional main line track, wayside signals, drainage, grade-separation structures, and stations, to accommodate the proposed service. The majority of construction activities would occur within or directly adjacent to the existing railroad ROW, and, therefore, would not be anticipated to result in the physical division of existing land uses. However, the construction of up to five new potential stations would require acquisition of parcels within local communities adjacent to the railroad ROW.

Temporary effects on land use would occur during construction within the Eastern Section of the Program Corridor under Build Alternative Option 1. Noise, pollutant emissions, and traffic generated by construction activities could temporarily disrupt residential or other sensitive land uses in the Eastern Section of the Program Corridor. When compared with the No Build Alternative, the temporary changes associated with Build Alternative Option 1 would have moderate effects on certain sensitive land uses adjacent to where construction could occur. When compared with Build Alternative Option 1, Build Alternative Option 2 would have slightly reduced construction effects due to a shorter route alignment and reduced station options (i.e., less construction activity and, as such, fewer sensitive land uses). However, the magnitude of effects would be similar for Build Alternative Option 2 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 rail track infrastructure. However, the magnitude of effects would be similar for Build Alternative Option 3 and considered moderate when compared with the No Build Alternative.

Site-specific land use compatibility effects, along with measures to minimize potential disruption to, and land use compatibility effects on adjacent land uses would be considered during the Tier 2/Project-level analysis.

OPERATION

Western Section. Operation of Build Alternative Options 1, 2, and 3 within the Western Section would not result in any physical divisions of established communities as the addition of two daily round-trip passenger trains would travel within an existing railroad ROW. When compared with the No Build Alternative, effects on land uses would be negligible because no additional infrastructure improvements are planned within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Within the Eastern Section of the Program Corridor, Build Alternative Option 1 would include the operation of a passenger rail system including station facilities. The majority of operational activities would occur within or directly adjacent to the existing railroad ROW, and, therefore, would not be anticipated to result in the physical division of existing land uses. Depending on where the station facilities are sited, effects on sensitive land use could occur in the form of increased noise and traffic. However, operation of the passenger rail system would also provide an alternative transportation option and additional opportunities for transit orientated development within the Eastern Section of the Program Corridor. When compared with the No Build Alternative, the land use changes associated with Build Alternative Option 1 would have moderate effects on certain sensitive land uses adjacent to where infrastructure or station facilities would operate. When compared with Build Alternative Option 1, Build Alternative Options 2 and 3 would have slightly reduced construction effects due to a shorter route alignment and reduced station options. However, the magnitude of effects would be similar and considered moderate when compared with the No Build Alternative.

Site-specific land use compatibility effects, along with measures to minimize potential disruption to, and land use compatibility effects on adjacent land uses would be considered during the Tier 2/Project-level analysis.

Agricultural Resource 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, conversion of agriculturally mapped lands to transportation uses would not occur and effects would be negligible within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Construction of Build Alternative Option 1, 2, or 3 in the Eastern Section of the Program Corridor would require the construction of rail stations, reconfiguration of existing or creation of new rail facilities, and potential ROW acquisition. These would require the conversion of non-transportation land to a transportation use. The site-specific design that would be developed in later Tier 2/Project-level phases would determine the extent to which land use conversions occur. If the rail infrastructure or station facility is within the ROW of, or closely parallel to, an existing transportation corridor, the extent of land conversion would be minimal. However, the farther rail infrastructure or a station facility departs from an existing transportation feature, the greater the likelihood for land use conversion, ranging from building on vacant/undeveloped land to potential displacement of existing structures.

If a passenger rail system is constructed and operated within the existing rail ROW, relatively few ROW acquisitions would be required. However, the Tier 1/Program EIS/EIR Study Area allows for infrastructure and station facilities to be located beyond the limits of the existing rail ROW, which would require acquisition of land not designated for transportation uses. Which agricultural land uses would be affected by the future construction and operation of a passenger rail system, and to what extent, cannot be determined at this time.

If agricultural mapped lands within the Eastern Section of the Program Corridor are converted to a transportation use, it would be considered an adverse effect. Agricultural lands are considered a finite and unique resource, once agricultural land is converted to other uses, that agricultural land is effectively eliminated. When compared with the No Build Alternative, Build Alternative Option 1 could have a substantial effect on agricultural resources 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 for Build Alternative Option 2 and considered substantial 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 rail track infrastructure. However, the magnitude of effects would be similar for Build Alternative Option 3 and considered substantial when compared with the No Build Alternative. Detailed analysis of ROW acquisition impacts would be completed in a subsequent Tier 2/Project-level analysis.

OPERATION

Western Section. Operation of Build Alternative Option 1, 2, or 3 within the Western Section would not result in effects on agricultural resources as the additional train trips would travel within an existing railroad ROW. When compared with the No Build Alternative, effects on agricultural resources would be negligible because no additional infrastructure improvements are planned within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Once construction ceases, operation of the new railroad infrastructure and stations under the Build Alternative Options would not be anticipated to require further conversion of agricultural lands. Operational effects associated with the Eastern Section portion of Build Alternative Option 1 on agricultural resources would be negligible when compared with the No Build Alternative. When compared with Build Alternative Option 1, Build Alternative Options 2 and 3 would have the same magnitude of effect and be considered negligible when compared with the No Build Alternative.

3.2.6 NEPA Summary of Potential Effects

Table 3.2-7 and Table 3.2-8 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 types of resources that may be affected and, more importantly, the relative magnitude of resources that may be affected. Specific mitigation measures to reduce effects would be identified during the Tier 2/Project-level environmental process.

Table 3.2-7. NEPA Summary of Effects on Land Use

Alternative Options	Potential Intensity of Effect: Western Section	Potential Intensity of Effect: Eastern Section
No Build Alternative ^a	Construction: None Operation: None	Construction: None Operation: Substantial
Build Alternative Option 1 (Coachella Terminus)	Construction: Negligible Operation: Negligible	Construction: Moderate Operation: Moderate
Build Alternative Option 2 (Indio Terminus)	Construction: Negligible Operation: Negligible	Construction: Moderate Operation: Moderate

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

Notes:

- ^a The No Build Alternative includes existing and potential expansion of roadway, passenger rail, and air travel facilities within the Tier 1/Program EIS/EIR Study Area; however, for the service-level evaluation, identifying levels of effect from potential expansion of those facilities is speculative and would be dependent on Tier 2/Project-level specific analysis.

EIR=environmental impact report; EIS=environmental impact statement

Table 3.2-8. NEPA Summary of Effects on Agricultural Resources

Alternative Options	Prime Farmland (acres)	Unique Farmland (acres)	Farmland of Statewide Importance (acres)	Farmland of Local Importance (acres)	Total Farmland Protection Policy Act Farmland (acres)	Potential Intensity of Effect: Western Section	Potential Intensity of Effect: Eastern Section
No Build Alternative ^a	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Construction: None Operation: None	Construction: None Operation: None
Build Alternative Option 1 (Coachella Terminus)	560.38	96.69	22.59	2,623.91	3,303.57	Construction: Negligible Operation: Negligible	Construction: Substantial Operation: Negligible
Build Alternative Option 2 (Indio Terminus)	362.55	96.69	22.59	2,549.89	3,021.72	Construction: Negligible Operation: Negligible	Construction: Substantial Operation: Negligible
Build Alternative Option 3 (Indio Terminus with Limited Third Track)	362.55	96.69	22.59	2,549.89	3,021.72	Construction: Negligible Operation: Negligible	Construction: Substantial Operation: Negligible

Notes:

^a The No Build Alternative includes existing and potential expansion of roadway, passenger rail, and air travel facilities within the Tier 1/Program EIS/EIR Study Area; however, for the service-level evaluation, identifying levels of effect from potential expansion of those facilities is speculative and would be dependent on Tier 2/Project-level specific analysis.

EIR=environmental impact report; EIS=environmental impact statement

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3.2.7 CEQA Summary of Potential Impacts

Based on the information provided in Section 3.2.4 and 3.2.5, and considering the CEQA Guidelines Appendix G Checklist questions for land use and planning and agriculture and forestry resources, the Build Alternative Options are considered to have a potentially significant impact on land use and planning and agriculture and forestry resources when reviewed on a Program-wide basis. Placing the infrastructure improvements and new stations largely within or along the existing ROW reduces the potential for significant impacts on these resources; however, because the proposed stations have not been selected, agricultural resources may be significantly impacted. At the programmatic analysis level, it is not possible to know the precise location, extent, and particular characteristics of impacts on these resources.

Proposed programmatic mitigation strategies, discussed in Section 3.2.8, would be applied to reduce potential impacts. Table 3.2-9 describes the CEQA significance conclusions for the Build Alternative Options; the proposed programmatic mitigation strategies that would be applied to minimize, reduce, or avoid the potential impacts; and the significance determination after mitigation strategies are applied. The identification and implementation of additional site-specific mitigation measures necessary for Project implementation would occur as part of the Tier 2/Project-level analysis.

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Table 3.2-9. CEQA Summary of Impacts for Land Use and Planning and Agriculture and Forestry Resources

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<i>Would the Program physically divide an established community?</i>		
<i>Construction</i>		
Western Section – No Impact. No impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level because no physical improvements are proposed or required in the Western Section under Build Alternative Option 1, 2, or 3.	Not applicable	Not applicable
Eastern Section – Potentially Significant. Potential impacts associated with physically dividing an established community depend on the location of new stations, which are currently unknown and which may require acquisition of parcels within local communities. However, the stations would be generally located adjacent to the existing tracks, and for that reason, impacts associated with dividing established communities would be unlikely. Construction activities would result in noise, air pollutants, and traffic impacts that may temporarily affect the community. While not anticipated, site-specific impacts would be further considered during the Tier 2/Project-level analysis, when the actual locations of the proposed stations can be identified.	LU-1 LU-2 LU-3	Potentially Significant. LU-1 through LU-3 would minimize, reduce, or avoid potential impacts associated with physically dividing an established community through design and further analysis. However, impacts may remain significant and unavoidable as further analysis may determine that land acquisitions would result in community impacts.
<i>Operation</i>		
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 that would cause or contribute to physical division of communities. Therefore, no impacts are anticipated under Build Alternative Option 1, 2, or 3.	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Less than Significant. Impacts from two additional round-trip daily trains are anticipated to be less than significant because they would not cause or contribute to physical division of communities. Therefore, a less than significant impact is anticipated under Build Alternative Option 1, 2, or 3.</p>	Not applicable	Not applicable
<p><i>Would the Program conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Program (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?</i></p>		
<p><i>Construction</i></p>		
<p>Western Section – No Impact. No 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.</p>	Not applicable	Not applicable
<p>Eastern Section – Potentially Significant. Potential impacts associated with consistency with plans and policies depend on the location of new stations and other infrastructure improvements, which are currently unknown. Construction of new stations may require land acquisition, which may require land use designation changes or amendments. However, a detailed analysis of city-level plans, policies, and regulations cannot be considered at the Tier 1/Program EIS/EIR level because such an analysis at this stage would be too speculative, given the exact location of stations is unknown at this time. The Tier 2/Project-level analysis would identify any conflict with any applicable plan, policy, or regulation.</p>	LU-3	<p>Potentially Significant. LU-3 would minimize, reduce, or avoid potential impacts from conflicts with plans and policies through design and further analysis. However, impacts may remain significant and unavoidable as further analysis may determine that there is a conflict that cannot be mitigated between land uses.</p>
<p><i>Operation</i></p>		
<p>Western Section – No Impact. No impacts are anticipated from operation because Build Alternative Options 1, 2, and 3 are consistent with federal, state, and regional plans and policies that promote expanding existing transportation options and providing multimodal connectivity within the region.</p>	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Potentially Significant. Potential impacts associated with consistency with plans and policies depend on the location of new stations and other infrastructure improvements, which are currently unknown. However, a detailed analysis of city-level plans, policies, and regulations cannot be considered at the Tier 1/Program EIS/EIR level because such an analysis at this stage would be too speculative, given the exact location of rail improvements and stations is unknown at this time. The Tier 2/Project-level analysis would identify any conflict with any applicable plan, policy, or regulation.</p>	<p>LU-3</p>	<p>Potentially Significant. LU-3 would minimize, reduce, or avoid potential impacts from conflicts with plans and policies through design and further analysis. However, impacts may remain significant and unavoidable as further analysis may determine that there is a conflict that cannot be mitigated between land uses.</p>
<p><i>Would the Program convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?</i></p>		
<p>Construction</p>		
<p>Western Section – No Impact. No impacts are anticipated under Build Alternative Option 1, 2, or 3 at the Tier 1/Program EIS/EIR evaluation level because no physical improvements are proposed or required within the Western Section and no agricultural mapped lands would be converted to non-agricultural use.</p>	<p>Not applicable</p>	<p>Not applicable</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Potentially Significant. The construction of rail infrastructure and station facilities could convert prime farmland, unique farmland or farmland of statewide importance to a non-agricultural use as these types of farmlands are present within the Eastern Section of the Program Corridor. Potential impacts associated with converting farmland to non-agricultural use depend on the location of new stations and other infrastructure improvements, which are currently unknown. Site-specific impacts would be further considered during the Tier 2/Project-level analysis when the actual locations of the proposed stations can be identified.</p>	<p>LU-4 LU-5</p>	<p>Potentially Significant. LU-4 and LU-5 would minimize, reduce, or avoid potential impacts associated with converting farmland through design, further analysis, and the consideration of agricultural easements. However, impacts may remain significant and unavoidable as further analysis may determine that agricultural easements would not actually mitigate the significant impact caused by the rail infrastructure or station facility proposed.</p>
Operation		
<p>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 that would result in conversion of agricultural mapped lands into non-agricultural uses within the Western Section of Program Corridor. Therefore, no impacts are anticipated under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – No Impact. Once construction is completed, operation of Build Alternative Option 1, 2, or 3 would not require conversion of farmland. Therefore, no impacts are anticipated under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<i>Would the Program conflict with existing zoning for agricultural use, or a Williamson Act contract?</i>		
<i>Construction</i>		
<p>Western Section – No Impact. No conflicts with agriculturally zoned land or land under a Williamson Act contract would occur because no physical improvements are proposed or required within the Western Section. Therefore, no impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	Not applicable	Not applicable
<p>Eastern Section – Potentially Significant. The construction of rail infrastructure and station facilities could conflict with existing zoning for agricultural uses or lands currently under a Williamson Act contract as both are present within the Eastern Section of the Program Corridor. Potential impacts associated with conflicts with existing zoning for agriculture or a Williamson Act contract depend on the location of new stations and other infrastructure improvements, which are currently unknown. Therefore, potentially significant impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3. Site-specific impacts would be determined during the Tier 2/Project-level analysis.</p>	<p>LU-4 LU-5 LU-6</p>	<p>Potentially Significant. Although LU-4 through LU-6 would minimize, reduce, or avoid potential impacts associated with converting farmland, it is unknown to what extent and type of impact on farmlands or Williamson Act contract lands would occur.</p>
<i>Operation</i>		
<p>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 that would result in conflicts with existing agricultural zoning or lands under a Williamson Act contract within the Western Section of Program Corridor. Therefore, no impacts are anticipated under Build Alternative Option 1, 2, or 3.</p>	Not applicable	Not applicable
<p>Eastern Section – No Impact. Once construction is completed, operation of Build Alternative Option 1, 2, or 3 would not conflict with existing agricultural zoning or lands under a Williamson Act contract within the Eastern Section of the Program Corridor. Therefore, no impacts are anticipated under Build Alternative Option 1, 2, or 3.</p>	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Would the Program conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?		
Construction		
Western Section – No Impact. No conflicts with existing zoning of forest land or timberland would occur because no physical improvements are proposed or required and there are no forest lands in the Western Section. Therefore, 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. No conflicts with existing zoning of forest land or timberland would occur because there are no forest lands in the Eastern Section. Therefore, 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. No conflicts with existing zoning of forest land or timberland would occur during operation because there are no forest lands in the Western Section. Therefore, 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. No conflicts with existing zoning of forest land or timberland would occur during operation because there are no forest lands in the Eastern Section. Therefore, 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

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<i>Would the Program result in the loss of forest land or conversion of forest land to non-forest use?</i>		
<i>Construction</i>		
Western Section – No Impact. No loss of forest land or conversion of forest land to non-forest land use would occur because no physical improvements are proposed or required and there are no forest lands in the Western Section. Therefore, 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. No loss of forest land or conversion of forest land to non-forest land use would occur because there are no forest lands in the Eastern Section. Therefore, 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
<i>Operation</i>		
Western Section – No Impact. No loss of forest land or conversion of forest land to non-forest land use would occur during operation because there are no forest lands in the Western Section. Therefore, 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. No loss of forest land or conversion of forest land to non-forest land use would occur during operation because there are no forest lands in the Eastern Section. Therefore, 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

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<i>Would the Program involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?</i>		
<i>Construction</i>		
Western Section – No Impact. No impacts are anticipated under Build Alternative Option 1, 2, or 3 at the Tier 1/Program EIS/EIR evaluation level because no physical improvements are proposed or required within the Western Section.	Not applicable	Not applicable
Eastern Section – Potentially Significant. The construction of rail infrastructure and station facilities could result in the direct conversion of farmland to non-agricultural uses and represent a change in existing conditions that could result in an indirect potential for conversion of farmland to non-agricultural uses within the Eastern Section of the Program Corridor. Potential impacts associated with converting farmland to non-agricultural use depend on the location of new stations and other infrastructure improvements, which are currently unknown. Therefore, potentially significant impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3. Site-specific impacts would be determined during the Tier 2/Project-level analysis.	LU-4 LU-5	Potentially Significant. LU-4 and LU-5 would minimize, reduce, or avoid potential impacts through design, further analysis, and the consideration of agricultural easements. However, impacts may remain significant and unavoidable as further analysis may determine that agricultural easements would not actually mitigate the significant impact caused by the rail infrastructure or station facility proposed.
<i>Operation</i>		
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 that would result in other changes that may result in the conversion of farmland or forest uses to non-farmland or non-forest uses. Therefore, no impacts are anticipated under Build Alternative Option 1, 2, or 3.	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Potentially Significant. Once construction is complete, the operation of rail infrastructure and station facilities would not result in the direct conversion of farmland to non-agricultural uses. While there are numerous economic and environmental factors that would preclude the long-term viability of agriculture in Riverside County and the Inland Empire, operation of station facilities represents a change in existing conditions that could result in an indirect potential for conversion of farmland to non-agricultural uses within the Eastern Section of the Program Corridor. Therefore, potentially significant impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	<p>LU-5</p>	<p>Potentially Significant. Although LU-5 would minimize, reduce, or avoid potential impacts through design, further analysis, and the consideration of agricultural easements, impacts may remain significant and unavoidable as further analysis may determine that agricultural easements would not actually mitigate the significant impact caused by the rail infrastructure or station facility proposed.</p>

Notes:

EIR=environmental impact report; EIS=environmental impact statement

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3.2.8 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. Potential mitigation measures would be developed in consultation with the agency with jurisdiction over the resource and might include avoiding agricultural land resources or minimizing the acreage of a physical take of these properties during planning and design and selecting rail station locations that avoid conflicts with sensitive land uses.

Proposed programmatic mitigation strategies, consistent with state and federal regulations, could include, but are not limited to, the following:

Mitigation Strategy LU-1: Based on the results of a subsequent Tier 2/Project-level analysis and recommendations, the identified lead agency or agencies shall determine the extent and duration of construction activities of the Tier 2/Project-level improvement being proposed and develop construction best management practices that shall be implemented by the contractor to reduce noise, air quality, and transportation effects, such as temporary sound barriers and traffic management plans. Depending on the nature of construction activities proposed and the location where construction activities could occur, construction best management practices could include, but are not limited to, the following:

- Limit noise-generating construction activities to the hours identified in the applicable local jurisdiction's ordinance and/or policies governing construction activities
- Control fugitive dust by watering disturbed areas
- Require specifications for construction equipment and idling times

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 resources 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 LU-4: During a subsequent Tier 2/Project-level analysis, siting of rail infrastructure and station facilities shall be designed by the identified lead agency or agencies to avoid or minimize conversion of farmland resources.

Mitigation Strategy LU-5: During a subsequent Tier 2/Project-level analysis, the identified lead agency or agencies shall determine if the siting of the Tier 2/Project-level improvement being proposed is located within an area mapped as farmland by the California Department of Conservation. If the Tier 2/Project-level improvement is located in an area mapped as farmland, the preparation of a land evaluation and site assessment shall be conducted to determine significance of impacts attributed to the loss or conversion of farmland associated with the siting of the Tier 2/Project-level improvement being proposed.

Mitigation Strategy LU-6: During a subsequent Tier 2/Project-level analysis, the identified lead agency or agencies shall determine if the siting of the Tier 2/Project-level improvement being proposed is located on land enrolled in a Williamson Act contract. Where lands enrolled in a Williamson Act contract are impacted during the siting of rail infrastructure or station facilities, the California Department of Conservation shall be notified by the identified lead agency or agencies and requirements of Government Code Section 51290-51295 and 51296.6 shall be met.

3.3 Transportation

3.3.1 Introduction

This section provides an evaluation of traffic and transportation-related effects associated with implementing the No Build Alternative and the Build Alternative Options. Information contained in this section is summarized from the *Transportation Impact Technical Memorandum* (Appendix C of this Tier 1/Program EIS/EIR).

3.3.2 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 transportation resources within the Tier 1/Program EIS/EIR Study Area and evaluated the potential impacts on those resources from implementation of the Build Alternative Options.

Federal

Federal Railroad Administration

According to the FRA's *Procedures for Considering Environmental Impacts* (64 FR 28545, May 26, 1999) Section 14(n)(13) (FRA 1999), an "EIS should assess the impacts on both passenger and freight transportation, by all modes, from local, regional, national, and international perspectives. The EIS should include a discussion of both construction period and long-term impacts on vehicular traffic congestion."

State

California Department of Transportation

Caltrans manages and coordinates statewide intercity passenger rail service that helps to improve California's air quality by reducing highway congestion and fuel consumption. Caltrans contracts with the National Railroad Passenger Corporation (Amtrak) to provide daily operation and maintenance of the Amtrak California service.

Senate Bill 743

California's SB 743, approved in 2013, changes the evaluation of traffic impacts under CEQA. The bill required the Office of Planning and Research to modify the CEQA Guidelines to replace existing approaches for studying transportation impacts under CEQA. These previously existing approaches focused on auto delay and congestion, which are typically measured using level of service. These metrics will no longer be requirements to determine traffic impacts under CEQA. Rather, SB 743 requires Office of Planning and Research to establish criteria for determining the significance of transportation impacts that promote the reduction of GHG emissions, the development of multimodal transportation networks, and a diversity of land uses. In December 2018, the California Natural Resources Agency finalized updates to the CEQA Guidelines, including the incorporation of SB 743 modifications.

SB 743 preserves local government authority to make planning decisions. Therefore, level of service and congestion can still be measured for planning purposes; however, automobile delay may no longer constitute a significant impact under CEQA.

Regional

Consideration of regional rail and roadway operations would include regional agency plans and regulations applicable to the planning of transportation infrastructure. Regional agencies include Metro, Orange County Transportation Authority, SBCTA, and RCTC. Regulations from regional agencies would be identified in the Tier 2/Project-level analysis once site-specific potential effects resulting from construction and operation of infrastructure improvements are known.

Southern California Association of Governments

SCAG is a Joint Powers Authority under California state law, established as an association of local governments and agencies that voluntarily convene as a forum to address regional issues. Under federal law, SCAG is designated as a metropolitan planning organizations (MPO) and under state law as a Regional Transportation Planning Agency and a Council of Governments. The SCAG region encompasses six counties - Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. On April 7, 2016, SCAG's Regional Council adopted the 2016-2040 RTP/SCS. The RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals. The RTP/SCS charts a course for closely integrating land use and transportation, so that the region can grow smartly and sustainably.

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.

3.3.3 Methods for Evaluating Environmental Effects

The methodology for this Tier 1/Program service-level evaluation identifies the approach and assumptions for the transportation assessment with regard to analyzing environmental consequences of the Build Alternative Options related to transportation effects. The methodology considers the change in travel conditions for the proposed transportation improvements by comparing the Build Alternative Options to the No Build Alternative.

Travel conditions included service frequency, travel time, connectivity between modes (type or form of transportation), improved access to existing destinations, new means of access to locations presently unserved by passenger rail, expanded modal options, customer convenience, and safety enhancement. Together, these travel conditions describe the overall service quality.

Table 3.3-1 presents the transportation assessment criteria and metrics for quantifying Program-related effects.

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Table 3.3-1. Transportation Impact Methodology Framework

Level of Analysis	Mode	Unit of Analysis	Metric	Travel Condition Factor
Regional	Highways and roadways	Travel along proposed Program Corridor	Vehicle trip reduction	Ridership
Regional	Highways and roadways	Travel along proposed Program Corridor	VMT reduction	Ridership
Regional	Highways and roadways	Travel along proposed Program Corridor	Highway safety enhancement (accident reduction)	Safety
Regional	Passenger rail	Travel along proposed Program Corridor	Off-highway person-capacity	Frequency
Regional	Passenger rail	Travel along proposed Program Corridor	Annual passengers	Ridership
Regional	Passenger rail	Travel along proposed Program Corridor	Passenger miles traveled	Ridership
Regional	Passenger rail	Travel along proposed Program Corridor	Travel time via public transportation	Travel time
Regional	Passenger rail	Travel along proposed Program Corridor	Reliability of service/on-time performance	Travel time
Regional	Freight rail	Shared rail corridor with proposed passenger rail service	Reliability of freight travel/delay to freight rail traffic	Travel time
Regional	Passenger rail	Representative station areas along proposed Program Corridor	Hours of service and frequency of possible connecting mode (commuter rail/public transit)	Connectivity
Regional	Passenger rail	Representative station areas along proposed Program Corridor	Number of trains per day	Frequency
Regional	Passenger rail	Representative station areas along proposed Program Corridor	Number of boardings/alightings for each station area	Ridership

Level of Analysis	Mode	Unit of Analysis	Metric	Travel Condition Factor
Regional	Passenger rail	Representative station areas along proposed Program Corridor	Transit accessibility to other parts of the region	Regional accessibility
Regional	Passenger rail	Representative station areas along proposed Program Corridor	Ease of station access (multimodal access, frequency of access)	Local accessibility

Notes:

VMT=vehicle miles traveled

Horizon Years

For the purpose of comparison between the Build Alternative Options and No Build Alternative, three horizon years were analyzed:

- Existing Year (2018): Under this scenario, Program-related transportation impacts were analyzed for the surrounding roadways and rail (passenger and freight) systems under existing conditions. This scenario was analyzed to fulfill CEQA requirements for establishing a baseline environmental setting.
- Opening Year (2024): Under this scenario, Program-related transportation impacts were analyzed for on the surrounding roadways and rail (passenger and freight) systems on the first day the Program is operational.
- Future Year (2044): Under this scenario, Program-related transportation impacts were analyzed for on the surrounding roadways and rail (passenger and freight) systems under full build-out conditions.

Service goals, which include frequency and targeted trip times of trains, for the Build Alternative Options were developed to meet the service objectives, as described in Chapter 1, Purpose and Need, of this Tier 1/Program EIS/EIR. The frequency of the proposed passenger rail service would be two daily round-trip intercity passenger trains based on a ridership forecasting model service optimization analysis conducted during preparation of the *Final Alternative Analysis, Coachella Valley-San Gorgonio Pass Rail Corridor Service Study* (summarized in Chapter 2, Program Alternatives, of this Tier 1/Program EIS/EIR). The details of the train schedule are presented in Appendix C of this Tier 1/Program EIS/EIR.

Tier 1/Program EIS/EIR Study Area

The study area used to quantify transportation impacts is different based on whether the assessment is conducted at the regional level or the local level. For regional transportation effects, the four-county study area is loosely defined around the Program Corridor, encompassing the regional freeways between Los Angeles and Coachella Valley. At the local level, the Tier 1/Program EIS/EIR Study Area includes the catchment areas within which existing and potential new stations may be located along the Build Alternative Options between Los Angeles and Indio/Coachella. A detailed description of the Tier 1/Program EIS/EIR Study Area is provided in Section 3.1, Introduction to Environmental Analysis, of this Tier 1/Program EIS/EIR.

Data Sources

Annual Ridership estimates were derived from a mode-share model for intercity rail modeling for Caltrans and Amtrak. The mode-share model forecasted ridership on the Amtrak California rail network, evaluated the service attributes of each travel mode, and predicted the share of trips made by each mode. The model’s forecasting approach was applied separately for the average weekday and weekend across 12 travel markets based on a combination of trip purposes (business, commute, personal, etc.) and time of day when the trip began (morning, midday, afternoon/evening, and nighttime). The mode-share model accounted for an intercity rail’s potential weekday/weekend schedules and patron travel patterns, which in turn influences how a traveler makes choices about travel modes based on trip purpose. An overview of the mode-share model is included in Appendix C of this Tier 1/Program EIS/EIR.

Station access mode choice for arriving and departing passengers at stations was estimated based on a recent Amtrak onboard survey of its state-supported Pacific Surfliner and San Joaquin corridor services in California (San Francisco State University 2017). Details of this survey results are included in Appendix C of this Tier 1/Program EIS/EIR.

Related Resources

This evaluation incorporates data and analysis from related resources to contribute to the assessment of transportation effects. These related resources are identified in Table 3.3-2.

Table 3.3-2. Related Resource Inputs for Transportation

Resource	Input for Transportation Assessment
Air Quality and Greenhouse Gases (Section 3.5)	Potential air quality benefits resulting from enhanced passenger service were considered.
Noise and Vibration (Section 3.6)	Location of areas where noise and vibration thresholds may be exceeded by the Program were identified.

3.3.4 Affected Environment

Transportation Networks and Services

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. Within the Program Corridor, there exists multiple modes of transportation and transportation networks including aviation (plane service), highway/roadway (for passenger vehicles and buses), and rail service (for passenger and freight service).

Build Alternative Option 1 (Coachella Terminus)

Table 3.3-3 summarizes the existing transportation networks and services within the Program Corridor under Build Alternative Option 1. Key regional highways serving the Tier 1/Program EIS/EIR Study Area are shown on Figure 3.3-1, while Figure 3.3-2 depicts intercity rail and regional bus service between Los Angeles and Coachella Valley. Additional details on existing transportation and services within the Program Corridor are provided in Appendix C of this Tier 1/Program EIS/EIR.

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Table 3.3-3. Summary of Transportation Networks and Services (Build Alternative Options 1, 2, and 3)

Transportation Mode	Description Summary
Aviation	Non-stop flights between Palm Springs and Los Angeles are operated twice a day between Palm Springs International Airport and Los Angeles International Airport.
Regional Highways	The Western Section of the Program Corridor is served by I-10, SR 60, and SR 91. The Eastern Section of the Program Corridor is served by I-10, SR 60, and SR 111. SR 111 serves as the main arterial highway between almost all Coachella Valley cities.
Bus Transit – Sunline Commuter Link 220	This commuter bus service operates a 73-mile route between the Coachella Valley and Western Riverside County. Three round-trips are operated on weekdays, with two morning and one afternoon westbound departures from Palm Desert, and one morning and two afternoon/evening eastbound departures from the Riverside Metrolink station. Trip time between Palm Desert and the Riverside Metrolink station is approximately 2 hours and 15 minutes (SunLine Transit Agency 2017).
Bus Transit – Sunline Commuter Link 120	This express bus service operates between Beaumont and the San Bernardino Metrolink station, with stops in Calimesa and at the Loma Linda Veterans Administration Hospital. Seven round-trips are operated throughout the day each weekday and five round-trips on Saturdays. In San Bernardino, riders can catch Metrolink trains to travel to parts of the Los Angeles Basin. This service originates in the western part of the San Gorgonio Pass Area, so it does not directly serve Banning, Cabazon, or the Coachella Valley. Trip time from Beaumont to San Bernardino Metrolink ranges between 40 and 55 minutes.
Bus Transit – Amtrak Thruway	Travelers may use Amtrak Thruway buses only in conjunction with trips made aboard Amtrak passenger trains. The buses cannot be used for standalone intercity bus travel). Twelve daily Amtrak Thruway buses combine to provide two daily round-trips between the Coachella Valley and Fullerton by way of Riverside; two daily round-trips between the Coachella Valley and Bakersfield by way of San Bernardino, Ontario, and Pasadena; as well as four daily roundtrips between Bakersfield and Riverside/San Bernardino. The trip time for the Thruway bus and Pacific Surfliner rail service between Indio and Los Angeles with transfer at Fullerton varies between 3 hours, 42 minutes and 4 hours, 35 minutes, depending on direction of travel.
Bus Transit – Greyhound	Greyhound operates intercity bus service between Los Angeles and Indio, with eight weekday trips from Los Angeles to Indio and seven from Indio to Los Angeles. Depending on the schedule, one to three communities (Indio, Thousand Palms, and Banning) in eastern Riverside County are served by this Greyhound route. Trip time for daytime service ranges from 3 to 4 hours, with late-night non-stop service making the trip in 2.5 hours.

Transportation Mode	Description Summary
<p>Passenger Rail - Amtrak</p>	<p>In the Western Section of the Program Corridor, Amtrak provides Pacific Surfliner intercity passenger service from San Luis Obispo to San Diego through Santa Barbara and Los Angeles. Twenty-six Amtrak Pacific Surfliner trains operate daily between Fullerton and Los Angeles. In the Eastern Section of the Program Corridor, Amtrak One Amtrak currently operates the Sunset Limited passenger service. The Sunset Limited is a long-distance train that travels between Los Angeles and New Orleans with three round-trips per week. The westbound train has a scheduled stop in Palm Springs at 2:02 a.m. on Monday, Wednesday, and Friday en route to a 5:35 a.m. arrival in Los Angeles. The eastbound Sunset Limited is scheduled to depart Los Angeles at 10:00 p.m. and makes a scheduled stop at Palm Springs at 12:36 a.m. on Monday, Thursday, and Saturday en route to New Orleans. The Palm Springs station is currently unstaffed and located in a fairly isolated location with no local transit access.</p>
<p>Passenger Rail - Metrolink</p>	<p>Within the Western Section of the Program Corridor, Metrolink provides multiple commuter rail services in Orange County, Riverside, or San Bernardino that connect to LAUS, Fullerton, and Riverside. These include the Orange County Line (Oceanside/Laguna Niguel/Irvine to LAUS), San Bernardino Line (San Bernardino to LAUS), the Riverside Line (Riverside to LAUS via Ontario), and the 91/Perris Valley Line (Perris and Riverside to LAUS, via Orange County). Metrolink averages 26 to 28 passenger and commuter trains daily throughout its rail network during the week, weekend, and holidays. Metrolink commuter rail service currently does not operate within the Coachella Valley.</p>
<p>Freight Rail</p>	<p>The Program Corridor is part of a key segment of high-density freight train routes that link Southern California, including the Ports of Los Angeles and Long Beach, with major population centers in the U.S., Midwest, the Gulf Coast, and the Southeast. As a result, freight train volumes in each section have substantial variability associated with vessel calls at the ports, customer requirements, day of week, and import-export fluctuations</p>

Notes:

LAUS=Los Angeles Union Station; SR=State Route; U.S.=United States

Figure 3.3-1. Existing Key Corridor Highways within the Program Corridor



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Figure 3.3-2. Existing Intercity Rail and Regional Bus Service within the Program Corridor



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Build Alternative Option 2 (Indio Terminus)

Existing transportation networks and services within Build Alternative Option 2 are the same as Build Alternative Option 1.

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

Existing transportation networks and services within Build Alternative Option 3 are the same as Build Alternative Option 1.

Rail Volume and Rail Corridor Ownership

Unlike roadways, U.S. freight railroads are owned by private organizations who are responsible for their own maintenance and improvement projects.

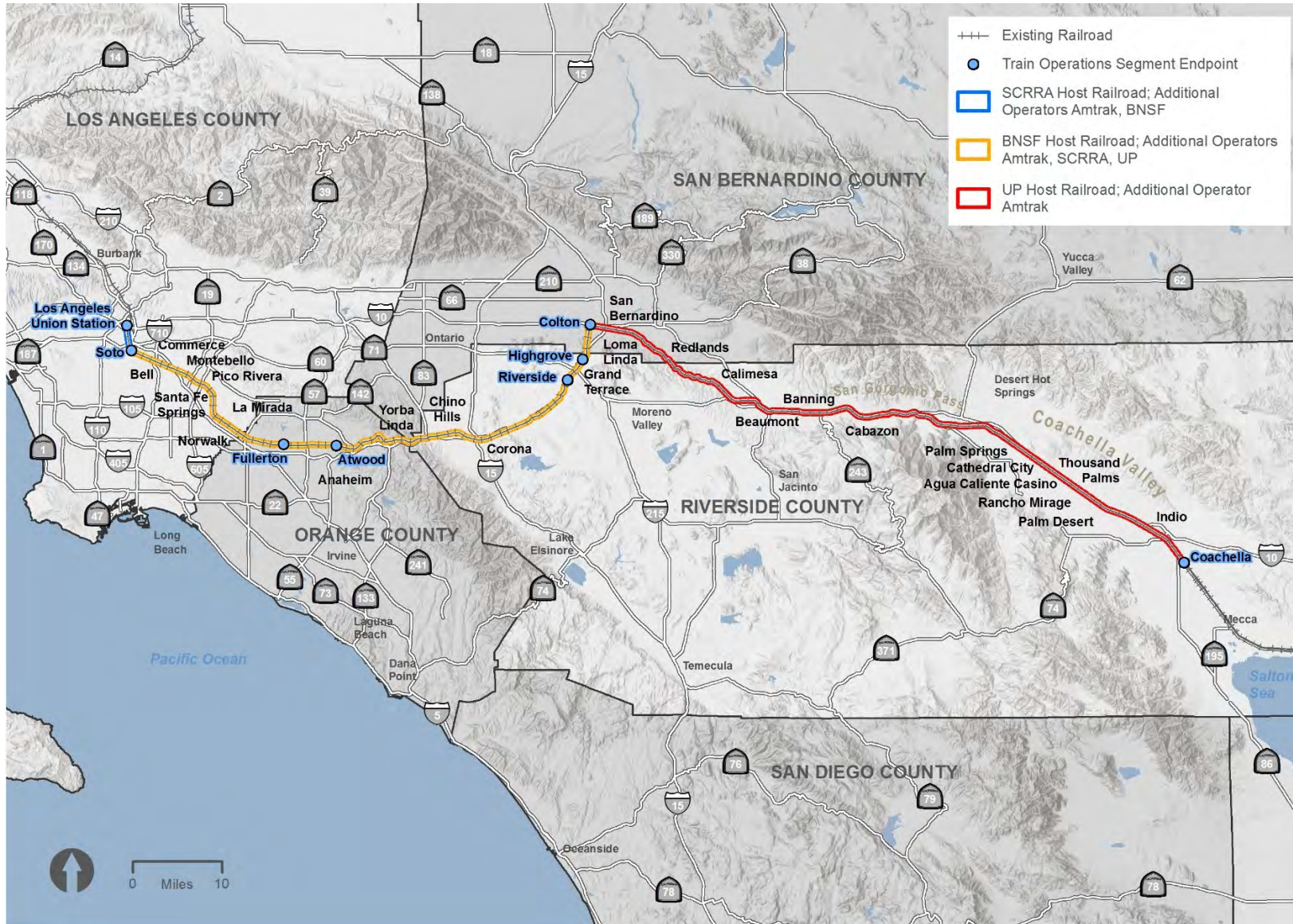
Build Alternative Option 1 (Coachella Terminus)

Table 3.3-4 and Figure 3.3-3 summarize and show the existing host railroads within the Program Corridor under Build Alternative Option 1. Within the Western Section of the Program Corridor, the host railroads are BNSF and SCRRA (aka Metrolink). Rail operators within the Western Section of the Program Corridor include BNSF, SCRRA, UP, and Amtrak. The Western Section has more variability in volume because of the passenger and commuter train services that use portions of this section. BNSF-hosted sections vary from 32 to 54 average freight trains per day, along with 2 to 26 average intercity passenger trains per day, and 8 to 28 average commuter trains per day that use part or all of the Program Corridor. The SCRRA-hosted section averages 26 and 28 passenger and commuter trains, respectively, per day to and from LAUS and also has one limited local freight service.

Within the Eastern Section of the Program Corridor, the host railroad is UP. Rail operators within the Eastern Section of the Program Corridor include UP and Amtrak. In the Eastern Section of the Program Corridor, UP's Yuma Subdivision, averages approximately 42 freight trains per day. In addition, Amtrak's long-distance passenger train, the Sunset Limited, operates six one-way trips per week (3 days per week in each direction) along the Eastern Section.

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Figure 3.3-3. Host Railroads and Additional Operators within the Program Corridor



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Table 3.3-4. Existing Year (2018) Daily Train Operations in the Coachella Valley Rail Corridor (Average One-Way Trips)

Segments	Existing Year (2018) Intercity Passenger One-way Train Trips	Existing Year (2018) Commuter One-way Train Trips	Existing Year (2018) Freight One-way Train Trips	Total Existing Year (2018) Average Daily Volume of Trains
Western Section (SCRRA – Host Railroad; Additional Operators – Amtrak, BNSF)				
Los Angeles (Union Station-Soto*)	26	28	1	55
Western Section (BNSF– Host Railroad; Additional Operators – Amtrak, SCRRA, UP)				
Los Angeles (Soto*)-Fullerton	26	28	32	86
Fullerton-Atwood	2	9	32	43
Atwood-Riverside	2	25	34	61
Riverside-Highgrove	2	20	54	76
Highgrove-Colton	2	8	54	64
Eastern Section (UP – Host Railroad; Additional Operators – Amtrak)				
Colton-Coachella	1	0	42	43

Notes:

Daily train counts represent revenue train movements on a weekday (Monday-Friday). Freight train counts are based on Base Year (2013) daily freight train totals for the line segments shown above, as published in the 2018 California State Rail Plan, Appendix A.4, Table 20. Passenger and commuter train counts are based on the following public timetables in effect in September 2018: Metrolink All Lines timetable effective May 14, 2018, the 2018 LOSSAN Southern California Passenger Rail System Map and Timetables effective April 1, 2018, the Amtrak Southwest Chief timetable effective July 31, 2018, and the Amtrak Sunset Limited timetable effective March 11, 2018.

* Soto interlocking (Milepost 144.4) in Los Angeles

LOSSAN=Los Angeles-San Diego-San Luis Obispo; SCRRA=Southern California Regional Rail Authority; UP=Union Pacific Railroad

Build Alternative Option 2 (Indio Terminus)

Existing rail volume and rail owners/operators within Build Alternative Option 2 are the same as Build Alternative Option 1.

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

Existing rail volume and rail owners/operators within Build Alternative Option 3 are the same as Build Alternative Option 1.

Railroad/Roadway Crossings

Railroad/roadway crossings are subject to a number of existing laws, regulations, and policies related to sight distance for drivers and highway and rail system operational requirements. At-grade railroad/roadway crossings also present a risk of collisions between trains and other travel modes, as well as a risk of collisions between vehicles, particularly rear-end-type crashes when vehicles stop at a crossing.

Build Alternative Option 1 (Coachella Terminus)

Within the Western Section, Build Alternative Option 1 crosses multiple highway/rail crossings.

There are 129 existing highway/rail crossings including the following types:

- Public at-grade crossings: 36
- Private at-grade crossings: 4
- Overpass, public roadway: 42
- Underpass, public roadway: 45
- Underpass, private crossing: 2

Within the Eastern Section, Build Alternative Option 1 crosses multiple highway/rail crossings. There are 51 existing highway/rail crossings, 2 of which are at-grade crossings within an existing quiet zone in the City of Loma Linda. The existing highway/rail crossings are of the following types:

- Public at-grade crossings: 15
- Private at-grade crossings: 8
- Overpass, public roadway: 23
- Underpass, public roadway: 3
- Underpass, pedestrian, public: 1
- Underpass, private crossing: 1

Build Alternative Option 2 (Indio Terminus)

Railroad/roadway crossings within Build Alternative Option 2 are the same as Build Alternative Option 1.

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

Railroad/roadway crossings within Build Alternative Option 3 are the same as Build Alternative Option 1.

Station Amenities

One of the main infrastructure features in a rail passenger system is the rail station. A station provides a means for passengers to purchase tickets and board trains. The capacity of a station is the ability of the station and its associated spaces to create safety and comfort for the number of passengers expected to use the station. This feeds into the performance of the entire passenger rail system.

Build Alternative Option 1 (Coachella Terminus)

Four existing stations along the Program Corridor have existing platforms and facilities that are anticipated to be used for the proposed passenger rail service. Table 3.3-5 summarizes local access to each of the existing stations in addition to existing amenities at each of the existing stations within the Program Corridor under Build Alternative Option 1.

Table 3.3-5. Existing Station Access and Amenities within the Program Corridor

Station	Station Summary
<i>Western Section</i>	
LAUS (City of Los Angeles, Los Angeles County)	<p>LAUS is a regional transportation hub providing multimodal access, including pedestrian and bicycle access. The station provides bicycle racks and lockers. The station is currently served by an extensive transit system including bus, rail, and high-occupancy vehicle facilities.</p> <p>Numerous bus routes start, stop, or terminate at LAUS and include long-haul, express, and local municipal buses provided by the City of Los Angeles Department of Transportation, Metro, Los Angeles World Airports, Orange County Transportation Authority, Foothill Transit, and Amtrak Thruway. Along with bus routes, the station also provides connection to Metro Red and Purple Lines, Gold Line, six Metrolink lines (91/Perris Valley Line, Antelope Valley Line, Orange County Line, Riverside Line, San Bernardino Line and the Ventura County Line), and four Amtrak services (Pacific Surfliner, Coast Starlight, Southwest Chief, and Sunset Limited).</p>

Station	Station Summary
	<p>Roadway access to the station is from Alameda Street on the west, Vignes Street on the east, and Cesar Chavez Avenue on the north. From the south, indirect access is provided from the El Monte Busway and Arcadia Street. Regional highway access to the station is provided via US-101 and I-110. Parking structures at both the east and the west end of the station provide paid parking spaces (approximately 3,000 spaces) (Union Station Los Angeles n.d.).</p>
<p>Fullerton Station (City of Fullerton, Orange County)</p>	<p>The Fullerton Station serves as a multimodal transportation center and provides bicycle and pedestrian access. The station provides bicycle racks and lockers. The station is served by two Metrolink lines (91/Perris Valley Line and Orange County Line) and two Amtrak services (Pacific Surfliner and Southwest Chief).</p> <p>Bus service is provided by Orange County Transportation Authority and Amtrak Thruway. Roadway access to the station is provided via Harbor Boulevard on the west, Santa Fe Avenue on the north, Walnut Avenue on the south, and Lemon Street on the east. Regional highway access to the station is provided via SR 91. The Fullerton station provides free parking and has 1,321 parking spaces of which 9 parking spaces are reserved for handicapped drivers. An additional parking structure west of Harbor Boulevard offers 814 spaces (SCRRA 2018).</p>
<p>Riverside Station (City of Riverside, Riverside County)</p>	<p>The Riverside station serves as a multimodal transportation center and provides bicycle and pedestrian access. Bicycle lockers or racks are not available at this station. The station is served by both Metrolink commuter service (91/Perris Valley Line, Inland Empire-Orange County Line, and Riverside Line) and Amtrak long distance service (Southwest Chief). Bus service to this station is provided by Riverside Transit Agency and SunLine.</p> <p>Roadway access to the station is provided via Vine Street on the north, 14th Street on the west, and Commerce Street on the south. Regional highway access to the station is provided via SR 91 and SR 60. The Riverside station provides free parking and has 1,115 parking spaces of which 25 parking spaces are reserved for handicapped drivers. In addition, 325 parking spaces are provided on the east parking lot, located off Commerce Street (off the south-side platform) (SCRRA 2018).</p>
<p>Eastern Section</p>	
<p>Palm Springs Station (City of Palm Springs, Riverside County)</p>	<p>The Palm Springs Station is served by Amtrak long distance service (Sunset Limited and Texas Eagle). Greyhound bus lines has a stop at the station, however, no ticketing services are available. SunLine provides bus connection along Indian Canyon Drive but does not provide direct access to the station. No other connecting transportation services are available except for taxi cabs and app-based ride sharing services. This station is not a full-service station with station amenities comprising of a single platform and an open-air shelter with a roof.</p> <p>Roadway access to the station is provided via Indian Canyon Drive and Palm Springs Station Drive on the east. Regional highway access to the station is provided via I-10. The Palm</p>

Station	Station Summary
	Springs station has 40 parking spaces available of which 4 parking spaces are reserved for handicapped drivers. In addition, six drop-off/pick-up spaces and 10 bus bays are provided.

Notes:

I=Interstate; LAUS=Los Angeles Union Station; Metro=Los Angeles County Metropolitan Transportation Authority; SCRRA=Southern California Regional Rail Authority; SR=State Route

Build Alternative Option 2 (Indio Terminus)

Existing stations within Build Alternative Option 2 are the same as Build Alternative Option 1.

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

Existing stations within Build Alternative Option 3 are the same as Build Alternative Option 1.

3.3.5 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 transportation would be anticipated as a result of constructing any of the Build Alternative Options. This section compares the No Build Alternative and the Build Alternative Options on their ability to meet the projected intercity travel demand and documents the anticipated changes to traffic patterns by Build Alternative Option, including changes in mode share, travel time, travel time reliability (for passenger rail and autos), and vehicle miles traveled (VMT). A qualitative discussion of potential effects on air carriers, intercity transit service providers, and freight operations is also provided.

With all of the Build Alternative Options, highway, bus, and air travel could decrease as users shift from these modes to the new rail service. Based on the broad assessment conducted, increases in mode share to rail could provide both negative and beneficial effects across all mode choices. For highway travel, the decrease in mode share would be a beneficial effect, based on users being encouraged to use transit and reduce congestion on highways, which could also provide a secondary benefit to bus service providers. Likewise, the increase in mode share for passenger rail is considered a beneficial effect of the Program.

The shift of intercity bus and air travelers to the rail system may yield additional benefits by providing a mode choice for travelers, travel time savings, and increased schedule reliability. For air carriers,

the potential benefits may include the opportunity to shift from short-haul to longer-haul flight operations, which may include more reliable scheduling and increased revenue.

There are also negative effects for bus and air travel carriers, since a reduction in their mode share would affect intercity bus service providers and air carrier operations (e.g., existing demand, schedule adjustments/reductions, and revenue). The shift in mode share and the corresponding effects are discussed further throughout the section.

For example, automobile drivers do not typically switch to transit without significant gains in travel time or reductions in cost. Compared with the No Build Alternative, the Build Alternative Options save travelers time compared with highway travel in most cases, with time savings generally increasing as the trip length increases or for urban areas where congestion levels are forecast to increase and highway travel time increases.

Travel time reliability is another beneficial effect of the Program. Trains operate on a scheduled service within a dedicated ROW and are not subject to fluctuations in traffic congestion. Highway travel time reliability varies from location to location, depending on future traffic conditions in the area. In general, the Build Alternative Options provide travel time reliability for train travelers, compared with expected increases in highway drive times. A reduction in VMT is also a beneficial effect of the Program.

No Build Alternative

The No Build Alternative, as described in Chapter 2, Program Alternatives, of this Tier 1/Program EIS/EIR, is used as the baseline for comparison. The No Build Alternative would not implement the Program associated with this service-level evaluation.

Transportation effects due to increased rail operations under the No Build Alternative are anticipated in the Western Section due to the following planned/programmed and/or funded projects:

- Capacity improvement between Los Angeles and Fullerton is forecast to provide 32 additional passenger/commuter slots between Los Angeles and Fullerton, with 10 of the new slots allocated for Amtrak's Pacific Surfliner trains (increasing service availability from today's 24 one-way trips to 34 trips) and 22 of the new slots allocated to Metrolink commuter or RCTC-sponsored passenger service (increasing the number of available Metrolink/RCTC frequencies from today's 28 one-way trips to 50 trips).
- Metro's Link Union Station Project would reconstruct the track and station infrastructure at LAUS to meet long-term rail travel needs and improve passenger comfort, safety, and ease of navigation through the facility.
- Los Angeles to Anaheim Project Section of the California High-Speed Rail Authority program proposes to utilize portions of the existing Los Angeles-San Diego-San Luis Obispo (LOSSAN) rail corridor to connect Los Angeles to Anaheim.

In the Eastern Section of the Program Corridor, the No Build Alternative would be similar to existing conditions for passenger rail and transit services that connect Coachella Valley with the greater Los Angeles metropolitan area, as well as forecasted increases in freight traffic. No known existing or committed transportation improvement projects are planned in the Eastern Section. The five intercity passenger rail and bus services that currently provide these connections are anticipated to remain unchanged from the existing conditions. No new regional linkages in the Eastern Section are programmed or funded for implementation at this time.

The counties and cities in the Tier 1/Program EIS/EIR Study Area would continue to grow, which would increase regional transportation demand. Under the No Build Alternative, accommodation of this additional transportation demand would be limited by the existing transportation infrastructure's capacity and capacity increases resulting from other approved transportation projects in the region. The No Build Alternative therefore assumes completion of those reasonably foreseeable transportation, development, and infrastructure projects that are already in progress; are programmed; or are included in the fiscally constrained RTP. An increase in traffic and VMT is anticipated under the No Build Alternative because more cars would be on the roadways compared with what would occur with implementation of the Program. Therefore, the No Build Alternative could result in air quality effects and potential additional noise effects on the surrounding land uses, which could affect sensitive receptors adjacent to existing transportation corridors. However, disruption of established communities related to construction and operation of the Program would be avoided.

Build Alternative Options 1, 2, and 3

Rail Operational Effects

CONSTRUCTION

Western Section. The Build Alternative Options would not require construction of additional rail infrastructure or stations in the Western Section of the Program Corridor because the existing rail infrastructure and stations from LAUS to Colton would be used. When compared with the No Build Alternative, short-term/temporary effects construction would be negligible because no additional construction activities are planned within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Construction activities associated with any of the Build Alternative Options would affect rail traffic by reducing train operating speeds through construction zones, causing delays to freight and passenger service. In addition, there could be the temporary suspension of train operations through a work zone during scheduled periods of construction, such as when new turnouts are being installed for sidings, station tracks, or interlockings. Track outages and construction-related speed restrictions could occur when adding new siding tracks, double-tracking, upgrading signals, constructing stations and station tracks, or modifying grade crossings. During construction, temporary shoo-fly¹ trackage may need to be installed for longer disruptions, and brief track outages, which would interrupt freight service temporarily, may be necessary. Once site specifics associated with the rail infrastructure improvement or station facility are known, the Tier 2/Project-level analysis would identify and evaluate where and when temporary impacts on rail operations would occur.

When compared with the No Build Alternative, short-term/temporary effects related to rail operations would be moderate within the Eastern Section under Build Alternative Option 1. 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 for Build Alternative Option 2 and would 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 rail track infrastructure. However, the magnitude of effects would be similar for Build Alternative Option 3 and would be considered moderate when compared with the No Build Alternative.

¹ Temporary shoo-fly trackage is temporary routing of track around a construction site or other obstruction.

OPERATION

Western Section. Infrastructure estimates and rail operations impact assessments are not required for the Western Section of the Build Alternative Options between Soto interlocking (Milepost 1444.4) in Los Angeles (Soto) and Colton. Under an existing Shared Use Agreement between RCTC and BNSF, the timetable slots for the Program within the Western Section are already in place. Rights to operate the Program within the Western Section are contractually obligated by BNSF to RCTC, and infrastructure sufficient to support the proposed service within the Western Section has been planned for or constructed to allow for implementation of the service, as documented in the 2016 AA Report (summarized in Chapter 2, Program Alternatives, of this Tier 1/Program EIS/EIR). Similarly, effects on rail operations and improvements to accommodate the Program between Soto and LAUS are not analyzed because these improvements are being accommodated within the capacity improvements currently planned in the Link Union Station Project. The Link Union Station Project would also identify infrastructure improvements required to support planned regional rail growth and future accommodation of California high-speed rail services at LAUS.

When compared with the No Build Alternative, effects related to rail operations would be negligible within the Western Section under Build Alternative Option 1. When compared with No Build Alternative and Build Alternative Option 1, Build Alternative Options 2 and 3 would have the same magnitude of effects and effects would be considered negligible.

Eastern Section. For the Eastern Section of the Program Corridor, the SDP identifies additional infrastructure and track capacity required to accommodate the Build Alternative Options and enable operation to achieve the on-time performance threshold of 90 percent for intercity passenger trains, without degrading future freight and other passenger rail services in the Program Corridor.

While the modeling shows improvements to freight service over the No Build Alternative, the purpose of the Build Alternative Options is to provide and enhance passenger rail service in the Program Corridor. Potential rail infrastructure improvements in the Eastern Section of the Program Corridor could include sidings, additional main line track, wayside signals, drainage, and grade-separation structures, as well as station facilities to facilitate implementation of the proposed passenger rail service. Site-specific rail infrastructure improvements to accommodate the selected Build Alternative Option would be identified in coordination with RCTC and the host railroads and operators during Tier 2/Project-level analysis. When compared with the No Build Alternative, effects related to rail operations would be moderate within the Eastern Section under Build Alternative Option 1. 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 for Build Alternative Option 2 and Build Alternative Option 3 and would be considered moderate when compared with the No Build Alternative.

Roadway and Vehicular Traffic Effects

CONSTRUCTION

Western Section. The Build Alternative Options would not require construction of additional rail or station infrastructure in the Western Section because the existing railroad infrastructure and stations from LAUS to Colton would be used. When compared with the No Build Alternative, short-term/temporary effects related to roadway and vehicular traffic would be negligible because no additional construction activities are planned within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Construction of rail infrastructure improvements, such as sidings, additional main line track, wayside signals, drainage, grade-separation structures, and stations could require temporary closure of lanes, sidewalks, bicycle lanes and routes, driveways, streets, and freeway lanes. All construction activities affecting roadways, bicycle paths, and pedestrian paths would be required to meet the requirements of the *California Manual on Uniform Traffic Control Devices* (MUTCD) (Caltrans 2020). Once site specifics associated with the rail infrastructure improvement or station facility are known, the Tier 2/Project-level analysis would identify and evaluate where temporary road closures and traffic detours would be needed. Mitigation strategies that require the preparation and implementation of a site-specific transportation management plan would help avoid, minimize, or reduce potential safety effects during construction activities. When compared with the No Build Alternative, short-term/temporary effects related to roadways and vehicular traffic would be moderate within the Eastern Section under Build Alternative Option 1. When compared with Build Alternative Option 1, Build Alternative Option 2 would have slightly reduced effects due to a shorter route alignment and reduce station options. However, the magnitude of effects would be similar for Build Alternative Option 2 and would 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 rail track infrastructure. However, the magnitude of effects would be similar for Build Alternative Option 3 and would be considered moderate when compared with the No Build Alternative.

OPERATION

Western Section. During operation of the Program within the Western Section of the Program Corridor, access streets around each existing station would likely be affected because of additional auto traffic generated by patrons accessing and departing from each station. Based on the ridership forecasts and estimates of mode choice for station access, an estimate of vehicle traffic generation was developed for each station under the Build Alternative Options. It was assumed that patrons for

this new rail passenger service would access the stations in a combination of modes – drove alone or carpoled and parked, got dropped and/or picked up by friend/family, used taxis/Uber/Lyft, and used future bus transit. Half the daily vehicle traffic would be generated during mid-morning/afternoon off-peak and the other half during the afternoon peak period.

Table 3.3-6 presents departure times of each train at each station location to indicate the time of day when activity would most likely occur at each station. Table 3.3-6 also provides an average estimate of passengers per train per ‘typical’ day and vehicle traffic generation per train and for a ‘typical’ day.

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Table 3.3-6. Train Schedule and Estimate of Vehicle Traffic Generation for each Station for Future Year (2044)

Station	Westbound AM Train Schedule - Coachella to LAUS (read up)	Eastbound AM Train Schedule – LAUS to Coachella (read down)	Westbound PM Train Schedule – Coachella to LAUS (read up)	Eastbound PM Train Schedule – LAUS to Coachella (read down)	Estimated Passenger Ons/Offs per Train ^a	Cars to be parked ^b	Kiss and Ride ^b	Transportation Network Company/ Taxi ^b	Bus ^{b,c}	Estimate of Vehicle Traffic generated by each Train ^d	Estimate of Daily Vehicle Traffic ^e
LAUS	12:40 p.m.	10:20 a.m.	6:40 p.m.	3:20 p.m.	194	13	46	42	0	189	756
Fullerton	12:06 p.m.	10:55 a.m.	6:06 p.m.	3:55 p.m.	36	6	14	8	0	50	200
Riverside	11:22 a.m.	11:39 a.m.	5:22 p.m.	4:39 p.m.	52	8	23	11	0	76	304
Loma Linda	10:59 a.m.	11:59 a.m.	4:59 p.m.	4:59 p.m.	52	8	20	11	1	70	280
Pass Area	10:20 a.m.	12:38 p.m.	4:20 p.m.	5:38 p.m.	13	2	6	3	1	20	80
Palm Springs	9:59 a.m.	1:02 p.m.	3:59 p.m.	6:02 p.m.	119	18	57	32	1	196	784
Mid-Valley	9:45 a.m.	1:14 p.m.	3:45 p.m.	6:14 p.m.	41	6	18	11	1	64	256
Indio	9:32 a.m.	1:30 p.m.	3:32 p.m.	6:30 p.m.	31	5	14	7	1	47	188
Coachella	9:25 a.m.	1:38 p.m.	3:25 p.m.	6:38 p.m.	27	4	12	6	1	40	160

Notes:

- ^a Calculated based on boardings/alightings for each station; typical day ridership estimated by dividing annual ridership by 300
- ^b Estimated vehicular activity per train is based on 2017 Amtrak onboard survey on station access mode choice for passengers using the Pacific Surfliner and the San Joaquin corridor services (San Francisco State University 2017)
- ^c Additional bus trips (not existing services)
- ^d Vehicular traffic generation at each station was calculated based on 1 trip for each car parked and 2 trips (in and out) for each pick up and drop off
- ^e Daily estimate obtained by multiplying estimates for each train by 4

LAUS=Los Angeles Union Station

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Table 3.3-7 provides a summary of the potential roadways at each of the stations that could be affected during operation of the Program.

Table 3.3-7. Potential Roadway Impacts by Stations for Future Year (2044)

Station	Local Roadway Access to Station	Potential Train Arrivals/Departures during AM Peak Hour periods ^a	Potential Train Arrivals/Departures during PM Peak Hour periods ^a
LAUS	Alameda Street, Vignes Street, and Cesar Chavez Avenue	None	3:20 p.m., 6:40 p.m.
Fullerton	Harbor Boulevard, Santa Fe Avenue, Walnut Avenue, and Lemon Street	None	3:55 p.m., 6:06 p.m.
Riverside	Vine Street, 14th Street, and Commerce Street	None	4:39 p.m., 5:22 p.m.
Loma Linda	To be determined	None	4:59 p.m.
Pass Area	To be determined	None	4:20 p.m., 5:38 p.m.
Palm Springs	Indian Canyon Drive and Palm Springs Station Drive	9:59 a.m.	3:59 p.m., 6:02 p.m.
Mid-Valley	To be determined	9:45 a.m.	3:45 p.m., 6:14 p.m.
Indio	To be determined	9:32 a.m.	3:32 p.m., 6:30 p.m.
Coachella	To be determined	9:25 a.m.	3:35 p.m., 6:38 p.m.

Notes:

^a Peak hours for traffic are generally considered as occurring from 6:00 a.m. through 10:00 a.m. and from 3:00 p.m. through 7:00 p.m. However, peak traffic hours vary from city to city, from region to region, and seasonally.

LAUS=Los Angeles Union Station

As summarized in Table 3.3-7, some of the proposed passenger activity (e.g., boarding and alighting trains) at all existing stations within the Western Section of the Program Corridor would occur during the PM peak hour for traffic. Based on the anticipated train timetable, none of the existing stations within the Western Section of the Program Corridor would have proposed passenger activity that would during the AM peak hour for traffic.

While operation of the Program within the Western Section would add auto trips to local street network for the existing stations, the Build Alternative Options are anticipated to shift auto trips to intercity rail passenger trips, thereby reducing vehicle trips and VMT on the regional highways.

Table 3.3-8 and Table 3.3-9 present the anticipated annual and daily reduction of auto trips and VMT for each horizon year for the Build Alternative Options.

Table 3.3-8. Auto Trip and Vehicle Miles Traveled Reduction by Horizon Year (Build Alternative Option 1)

Timeframe	Existing Year (2018) Auto Trip Reduction	Existing Year (2018) VMT Reduction	Opening Year (2024) Auto Trip Reduction	Opening Year (2024) VMT Reduction	Future Year (2044) Auto Trip Reduction	Future Year (2044) VMT Reduction
Annual	92,299	9,026,844	107,344	10,498,246	178,045	17,412,809
Daily	308	30,089	358	34,994	593	58,043

Notes:

For calculating a typical day for the daily quantities, the annual ridership was divided by 300.

VMT=vehicle miles traveled

Table 3.3-9. Auto Trip and Vehicle Miles Traveled Reduction by Horizon Year (Build Alternative Options 2 and 3)

Timeframe	Existing Year (2018) Auto Trip Reduction	Existing Year (2018) VMT Reduction	Opening Year (2024) Auto Trip Reduction	Opening Year (2024) VMT Reduction	Future Year (2044) Auto Trip Reduction	Future Year (2044) VMT Reduction
Annual	85,147	8,325,625	99,026	9,682,718	164,248	16,060,152
Daily	284	27,752	330	32,276	547	53,534

Notes:

For calculating a typical day for the daily quantities, the annual ridership was divided by 300.

VMT=vehicle miles traveled

Auto and VMT reduction was calculated based off two-way auto trips that would be shifted to rail trips. VMT reduction was calculated based on multiplying average trip length for the Build Alternative Options by the corresponding number of two-way auto trip reduction. The average trip length was calculated based on approximate distance between station pairs and their annual ridership. Based on the data presented in Table 3.3-8 and Table 3.3-9, auto trip reductions and VMT reductions are

forecast to grow as the ridership increases. The annual reduction rate for both auto trips and VMT is forecast to be between 3 percent and 4 percent over time within the Program Corridor.

When compared with the No Build Alternative, effects related to roadways and vehicular traffic would be moderate within the Western Section under Build Alternative Option 1. When compared with Build Alternative Option 1, Build Alternative Options 2 and 3 would have the same magnitude of effect and would be considered moderate when compared with the No Build Alternative.

Eastern Section. As summarized in Table 3.3-7, proposed passenger activity (boarding and alighting trains) at the existing station (Palm Springs station) within the Eastern Section of the Program Corridor would occur during the AM and PM peak hours for traffic. Two of the proposed stations (Loma Linda station and Pass Area station) would have proposed passenger activity occurring during the PM peak hour for traffic. The other three proposed stations (Mid-Valley station, Indio station, and Coachella station) would have proposed passenger activity occurring during both the AM and PM peak hours for traffic.

For the proposed stations within the Eastern Section of the Program Corridor, catchment areas have been identified, but no specific sites have been selected. Therefore, it is not known at the Tier 1/Program evaluation phase which local streets may be impacted by operation of station facilities. It is possible that the addition of auto trips to the existing roadway network could result in effects on local roadways that would require mitigation. A detailed assessment of operational traffic impacts would be conducted during the Tier 2/Project-level analysis once site-specific rail infrastructure or station facility details are known.

While operation of the Program within the Eastern Section would add auto trips to local street network, the Build Alternative Options are anticipated to shift auto trips to intercity rail passenger trips, thereby reducing vehicle trips and VMT on the regional highways. As summarized in Table 3.3-8 and Table 3.3-9, auto trip reductions and VMT reductions are forecast to grow as the ridership increases. The annual reduction rate for both auto trips and VMT is forecast to be between 3 percent and 4 percent over time within the Program Corridor. When compared with the No Build Alternative, effects related to roadways and vehicular traffic would be substantial within the Eastern Section under Build Alternative Option 1. When compared with Build Alternative Option 1, Build Alternative Options 2 and 3 would have the same magnitude of effect and would be considered substantial when compared with the No Build Alternative.

Railroad/Roadway Crossing Modification Effects

CONSTRUCTION

Western Section. The Build Alternative Options would not require construction of additional rail or station infrastructure in the Western Section because the existing railroad infrastructure and stations from LAUS to Colton would be used. When compared with the No Build Alternative, short-term/temporary effects related to railroad/roadway crossings would be negligible because no additional construction activities are planned within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Construction of rail infrastructure improvements, such as sidings, additional main line track, wayside signals, drainage, grade-separation structures, and stations in the Eastern Section could require potential modifications to the existing at-grade and grade-separated crossings. For example, for an existing overpass, the placement of a new track would need to meet UP requirements for horizontal and vertical clearances and pier-protection, requirements as stipulated in the American Railway Engineering and Maintenance-of-Way Association Manual for Railway Engineering. If the existing overpass did not already meet all necessary requirements, it would either have to be modified or replaced to allow for the construction and operation of the additional track identified for the site-specific rail infrastructure or station facility proposed.

Modifications to public at-grade crossings would be determined by a crossing-diagnostic team evaluation, as per the requirements of the MUTCD, while modifications to private crossings would be determined by UP, as needed. In addition, modifications to public at-grade crossings are subject to approval by the California Public Utilities Commission (CPUC). Crossings within the existing Loma Linda quiet zone would require coordination with FRA to determine the effect, if any, on the current quiet zone risk indices. The rough magnitude of track infrastructure improvements would be determined from rail operations modeling paired with input from the host railroads.

Depending on the site-specific constraints of the potential stations within the Eastern Section, the addition of station tracks may necessitate modifications to existing crossings, including the addition of pedestrian overcrossings and elevators.

A detailed assessment of effects on existing and proposed railroad/roadway crossings would be prepared during the Tier 2/Project-level analysis once site-specific rail infrastructure improvements or station facility details are known. When compared with the No Build Alternative, effects related to railroad/roadway crossing modifications would be moderate within the Eastern Section under Build Alternative Option 1. When compared with Build Alternative Option 1, Build Alternative Options 2 and 3 would have slightly reduced effects due to a shorter route alignment and reduced station

options. However, the magnitude of effects would be similar and would be 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 the Coachella Valley. The number of trains traveling through the existing grade crossings between LAUS and Colton would increase with implementation of the Program. However, the traffic control devices at these existing crossings provide the level of advanced warning and protection from an oncoming train required by the CPUC and the California MUTCD (Caltrans 2020). These existing grade crossings currently meet the requirements of the CPUC and the California MUTCD. Operation of the Program in the Western Section would not modify the existing grade crossing devices and would not require the approval of the CPUC. It is anticipated that gate operation at these existing grade crossings would be optimized to accommodate the increased number of activities. 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.

Eastern Section. Similar to the 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 the Coachella Valley. The number of trains traveling through the existing grade crossings between Colton and eastern terminus (Coachella for Build Alternative Option 1, Indio for Build Alternative Options 2 and 3), would increase with implementation of the Program. It is anticipated that the need for additional railroad/roadway crossings would be identified and implemented as part of the construction of rail improvements and station facilities in the Eastern Section. Therefore, once construction has concluded, operation of the Program in the Eastern Section would not modify the existing railroad/highway crossing devices. Effects associated with the Eastern Section of the Program Corridor under Build Alternative Option 1 would be negligible when compared with the No Build Alternative. When compared with Build Alternative Option 1, Build Alternative Options 2 and 3 would have slightly reduced effects due to a shorter route alignment and reduced station options. However, the magnitude of effects would be similar and would be considered negligible when compared with the No Build Alternative.

Ridership Forecast Effects

CONSTRUCTION

Western and Eastern Section. Ridership forecast effects are only associated with operation of the Program. When compared with the No Build Alternative, short-term/temporary effects related to ridership forecast would be negligible within the Western and Eastern Sections under Build Alternative Options 1, 2, and 3.

OPERATION

Western and Eastern Section. Ridership metrics identified in Table 3.3-10 and Table 3.3-11 present the potential estimated demand of the proposed service by Build Alternative Option. Passenger ridership is expected to increase annually from 3 percent to 4 percent based on the data presented in Table 3.3-10 and Table 3.3-11, along with corresponding increase in estimated passenger miles traveled.

A hypothetical 2018 annual revenue from ticket sales is presented for study purposes. The annual estimated revenue is calculated using an estimated average ticket price based on the current fare structure on the LOSSAN Rail Corridor.

Table 3.3-10. Proposed Ridership Metrics by Horizon Year (Build Alternative Option 1)

Ridership Metrics	Existing Year (2018)	Opening Year (2024)	Future Year (2044)
Annual Ridership (one-way trips)	175,500	204,107	338,540
Average Ridership per Train ^a	146	170	282
Annual Passenger Miles Traveled (in millions)	17.2	20.0	33.1

Source: Steer 2018

Notes:

Build Alternative Option 1 assumes service to three existing Western Section station locations (LAUS, Fullerton, and Riverside), one existing Eastern Section station location (Palm Springs), and up to five potential Eastern Section station areas (Loma Linda, Pass Area, Mid-Valley, Indio and Coachella). Coachella is considered the eastern terminus of the Program Corridor under Build Alternative Option 1.

^a Average ridership per train for a typical day was calculated by dividing the annual ridership (one-way trips) by 300 days and four trains per day

LAUS=Los Angeles Union Station

Table 3.3-11. Proposed Ridership Metrics by Horizon Year (Build Alternative Options 2 and 3)

Ridership Metrics	Existing Year (2018)	Opening Year (2024)	Future Year (2044)
Annual Ridership (one-way trips)	161,900	188,290	312,306
Average Ridership per Train ^a	135	157	260
Annual Passenger Miles Traveled (in millions)	15.8	18.4	30.5

Source: Steer 2018

Notes:

Build Alternative Options 2 and 3 assume service to three existing Western Section station locations (LAUS, Fullerton, and Riverside), one existing Eastern Section station location (Palm Springs), and up to four potential Eastern Section station areas (Loma Linda, Pass Area, Mid-Valley, and Indio). Indio is considered the eastern terminus of the Program Corridor under Build Alternative Options 2 and 3.

^a Average ridership per train for a typical day was calculated by dividing the annual ridership (one-way trips) by 300 days and four trains per day

LAUS=Los Angeles Union Station

As summarized in Table 3.3-12 and Table 3.3-13, the Palm Springs station is forecast to have the most ridership across all Build Alternative Options (not including LAUS), followed by Loma Linda, Riverside, and Mid-Valley stations.

In general, the Build Alternative Options would create a new rail alternative for travelers between the Los Angeles basin and the Coachella Valley with opportunities to connect communities along the Program Corridor that are not currently accessible by rail. In addition, the rail passenger service could also provide for a limited same day round-trip.

For Build Alternative Option 1, the increase in passenger ridership presented in Table 3.3-10 translates to almost doubling of ridership by Future Year (2044), from the estimated ridership in Existing Year (2018) (175,500 one-way trips in 2018 and 338,540 one-way trips in 2044). Between the Opening Year (2024) and the Future Year (2044), ridership is expected to increase by 66 percent (204,107 one-way trips in 2024 and 338,540 one-way trips in 2044).

For Build Alternative Options 2 and 3, the increase in passenger ridership presented in Table 3.3-10 translates to almost doubling of ridership by Future Year (2044), from the estimated ridership in Existing Year (2018) (161,900 one-way trips in 2018 and 312,306 one-way trips in 2044). Between the Opening Year (2024) and the Future Year (2044), ridership is expected to increase by 66 percent (188,290 one-way trips in 2024 and 312,306 one-way trips in 2044).

Table 3.3-12. Annual Boardings and Alightings at Proposed Station Options by Horizon Year (Build Alternative Option 1)

Proposed Station Options	Existing Year (2018)	Opening Year (2024)	Future Year (2044)
LAUS	120,500	140,142	232,445
Fullerton	22,600	26,284	43,595
Riverside	32,100	37,332	61,921
Loma Linda/ Redlands	32,300	37,565	62,307
Pass Area	8,300	9,653	16,011
Palm Springs	73,900	85,946	142,553
Mid-Valley	25,300	29,424	48,804
Indio	19,400	22,562	37,423

Proposed Station Options	Existing Year (2018)	Opening Year (2024)	Future Year (2044)
Coachella	16,600	19,306	32,021
Total	351,000	408,214	677,080

Source: Steer 2018

Notes:

LAUS=Los Angeles Union Station

Table 3.3-13. Annual Boardings and Alightings at Proposed Station Options by Horizon Year (Build Alternative Options 2 and 3)

Proposed Station Options	Existing Year (2018)	Opening Year (2024)	Future Year (2044)
LAUS	114,100	132,698	220,099
Fullerton	23,200	26,982	44,753
Riverside	28,600	33,262	55,169
Loma Linda/ Redlands	29,500	34,309	56,906
Pass Area	8,100	9,420	15,625
Palm Springs	72,600	84,434	140,045
Mid-Valley	25,300	29,424	48,804
Indio	22,400	26,051	43,210
Total	323,800	376,580	624,611

Source: Steer 2018

Notes:

LAUS=Los Angeles Union Station

When compared with the No Build Alternative, effects related to ridership forecasts would be moderately beneficial within the Western and Eastern Sections under Build Alternative Option 1. When compared with Build Alternative Option 1, Build Alternative Options 2 and 3 would have slightly reduced beneficial effects due to a shorter route alignment and reduced station options. However, the magnitude of effects would be similar and would be considered moderately beneficial when compared with the No Build Alternative.

Travel Time Effects

CONSTRUCTION

Western Section. The Build Alternative Options would not require construction of additional rail or station infrastructure in the Western Section because the existing railroad infrastructure and stations from LAUS to Colton would be used. When compared with the No Build Alternative, short-term/temporary effects related to travel time would be negligible because no additional construction activities are planned within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. When compared with the No Build Alternative, short-term/temporary effects related to travel time would be negligible within the Eastern Section under Build Alternative Options 1, 2, and 3.

OPERATION

Western and Eastern Section. Between Existing Year (2018), Opening Year (2024) and Future Year (2044) of operation of the Build Alternative Options, regional population and employment growth is anticipated to occur within the Program Corridor. This population and employment growth would result in additional demands on the existing roadway and highway networks which could contribute to congestion and impact both regional and local mobility.

According to the 2016 SCAG RTP/SCS, population in the SCAG region would increase by approximately 4 percent between Existing Year (2018) and the Opening Year (2024) and 18 percent between Existing Year (2018) and Future Year (2044). Population growth between Opening Year (2024) and Future Year (2044) is anticipated to be 14 percent in the SCAG region. In comparison, Riverside County is expected to double this growth. Between Existing Year (2018) and Opening Year (2024), Riverside County is forecast to experience a 9 percent population growth, and between Existing Year (2018) and Future Year (2044), a 36 percent population growth. Corresponding growth between Opening Year (2024) and Future Year (2044) is anticipated at 25 percent in Riverside County (SCAG 2016). Based on these projections, roadway congestion would likely increase substantially between Existing Year (2018) and both Opening Year (2024) and Future Year (2044), contributing to longer auto travel times along the Program Corridor. Table 3.3-14 and Table 3.3-15 summarize travel time for the different travel modes envisioned under the Build Alternative Options.

Table 3.3-14. Rail/Bus Travel Time by Horizon Year (Build Alternative Option 1)

Horizon Year	Mode of Travel	Average Travel Time (hour: minutes)	Average Travel Time Saving ^d (compared with Intercity Bus travel)
Existing Year (2018)	Intercity Bus (Existing Conditions) ^a	3:07	—
Existing Year (2018)	Intercity Bus/Rail (Scenario 1) ^b	4:08	—
Existing Year (2018)	Intercity Bus/Rail (Scenario 2) ^c	4:41	—
Existing Year (2018)	Passenger Rail	3:16	1:25
Opening Year (2024)	Passenger Rail	3:16	At least 1:25
Future Year (2044)	Passenger Rail	3:16	At least 1:25

Notes:

- ^a Intercity Bus travel under existing conditions assumes use of Greyhound service from Los Angeles to Indio
- ^b Intercity bus/rail travel (Scenario 1) assumes travel on Amtrak Thruway service from Indio to Fullerton and connection to Amtrak Pacific Surfliner from Fullerton to Los Angeles
- ^c Intercity bus/rail travel (Scenario 2) assumes travel on SunLine Commuter Link 220 from Palm Desert to Downtown Riverside Metrolink Station and connection to Metrolink Riverside Line to Los Angeles
- ^d Highway traffic congestion in 2024 and 2044 is expected to increase from 2018, thereby adding to travel time saving for train travel compared with the bus portion of the trip that uses congested freeways

Table 3.3-15. Rail/Bus Travel Time by Horizon Year (Build Alternative Options 2 and 3)

Horizon Year	Mode of Travel	Average Travel Time (hour: minutes)	Average Travel Time Saving ^d (compared with Intercity Bus travel)
Existing Year (2018)	Intercity Bus (Existing Conditions) ^a	3:07	—
Existing Year (2018)	Intercity Bus/Rail (Scenario 1) ^b	4:08	—
Existing Year (2018)	Intercity Bus/Rail (Scenario 2) ^c	4:41	—
Existing Year (2018)	Passenger Rail	3:09	1:32
Opening Year (2024)	Passenger Rail	3:09	At least 1:32

Horizon Year	Mode of Travel	Average Travel Time (hour: minutes)	Average Travel Time Saving ^d (compared with Intercity Bus travel)
Future Year (2044)	Passenger Rail	3:09	At least 1:32

Notes:

- ^a Intercity Bus travel under existing conditions assumes use of Greyhound service from Los Angeles to Indio
- ^b Intercity bus/rail travel (Scenario 1) assumes travel on Amtrak Thruway service from Indio to Fullerton and connection to Amtrak Pacific Surfliner from Fullerton to Los Angeles
- ^c Intercity bus/rail travel (Scenario 2) assumes travel on SunLine Commuter Link 220 from Palm Desert to Downtown Riverside Metrolink Station and connection to Metrolink Riverside Line to Los Angeles ^d Highway traffic congestion in 2024 and 2044 is expected to increase from 2018, thereby adding to travel time saving for train travel compared with the bus portion of the trip that uses congested freeways

As summarized in Table 3.3-14 and Table 3.3-15, if the Program were to be built under Existing Year (2018) conditions, travel time savings could range between 1 hour 25 minutes for Build Alternative Option 1 and 1 hour 38 minutes for Build Alternative Options 2 and 3. With congestion likely to increase in the future, the Program would likely save more travel time in Opening Year (2024) Future Year (2044) conditions as traffic congestion in the Program Corridor increases and slows down travel speeds on the highway system. Specific travel time savings would be analyzed in more detail during the Tier 2/Project-level analysis.

When compared with the No Build Alternative, effects related to travel time would be moderately beneficial within the Western and Eastern Sections under Build Alternative Option 1. When compared with Build Alternative Option 1, Build Alternative Options 2 and 3 would have slightly reduced effects due to a shorter route alignment and reduced station options. However, the magnitude of effects would be similar and would be considered moderately beneficial when compared with the No Build Alternative.

Traveler Safety Effects

CONSTRUCTION

Western Section. The Build Alternative Options would not require construction of additional rail or station infrastructure in the Western Section because the existing railroad infrastructure and stations from LAUS to Colton would be used. When compared with the No Build Alternative, short-term/temporary effects related to traveler safety would be negligible because no additional construction activities are planned within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Construction of rail infrastructure improvements, such as sidings, additional main line track, wayside signals, drainage, grade-separation structures, and stations could require temporary closure of lanes, sidewalks, bicycle lanes and routes, driveways, streets, and freeway lanes, which could affect traveler safety within an area. All construction activities affecting roadways, bicycle paths, and pedestrian paths would be required to meet the requirements of the MUTCD (Caltrans 2020). Once site specifics associated with the rail infrastructure improvement or station facility are known, the Tier 2/Project-level analysis would identify and evaluate where temporary road closures and traffic detours would be needed. Mitigation strategies that require the preparation and implementation of a site-specific transportation management plan would help avoid, minimize, or reduce potential traveler safety effects during construction activities. When compared with the No Build Alternative, short-term/temporary effects related to traveler safety would be moderate within the Eastern Section under Build Alternative Option 1. When compared with Build Alternative Option 1, Build Alternative Options 2 and 3 would have slightly reduced effects due to a shorter route alignment and reduced station options. However, the magnitude of effects would be similar and would be considered moderate when compared with the No Build Alternative.

OPERATION

Western and Eastern Section. Overall, traveler safety within any of the Build Alternative Options would improve because a passenger rail service would divert some automobile trips to an alternate mode of travel such as passenger rail. The safety risk to travelers would decrease, as rail travel is statistically safer per passenger mile than automobile travel. The potential decrease in automobile VMT that could be realized with implementation of the Build Alternative Options would be anticipated to result in a corresponding reduction of potential automobile injuries and fatalities within the Program Corridor. The potential annual reduction in fatalities and injuries on the highway system as a result of implementing the Build Alternative Options for each of horizon year (Existing Year [2018], Opening Year [2024], and Future Year [2044]) is presented in Table 3.3-16 and Table 3.3-17. Calculations were based on the following accident rates obtained from Caltrans and Amtrak's operating experience in 2017:

- Highway fatality rate: 0.005 per million vehicle miles
- Highway injury rate: 0.548 per million vehicle miles
- Passenger rail fatality rate: 0.046 per 100 million passenger miles
- Passenger rail injury rate: 14.78 per 100 million passenger miles

Table 3.3-16. Annual Number of Accidents Eliminated by Horizon Year (Build Alternative Option 1)

Accident Type	Existing Year (2018)	Opening Year (2024)	Future Year (2044)
<i>Fatal Accidents</i>			
Roadway accidents eliminated due to Program	0.05	0.05	0.09
Number of rail passenger accidents associated with the Program	0.01	0.01	0.01
Net number of accidents eliminated due to Program^a	0.04	0.04	0.08
<i>Injury Accidents</i>			
Roadway accidents eliminated due to Program	4.95	5.75	9.54
Number of rail passenger accidents associated with the Program	2.50	2.90	4.82
Net number of accidents eliminated due to Program^a	2.45	2.85	4.72

Notes:

^a Difference between roadway accidents eliminated and rail passenger accidents associated with the Program.

Rates for fatal and injury accidents on roadways obtained from Caltrans, Table B - Selective Accident Rate Calculation, I-10 Los Angeles, San Bernardino, 36-month historical rates (2014).

Rates for rail-related accidents/incidents obtained from FRA Office of Safety Analysis (2019).

Caltrans=California Department of Transportation

Table 3.3-17. Annual Number of Accidents Eliminated by Horizon Year (Build Alternative Options 2 and 3)

Accident Type	Existing Year (2018)	Opening Year (2024)	Future Year (2044)
<i>Fatal Accidents</i>			
Roadway accidents eliminated due to Program	0.04	0.05	0.08
Number of rail passenger accidents associated with the Program	0.01	0.01	0.01
Net number of accidents eliminated due to Program^a	0.03	0.04	0.07
<i>Injury Accidents</i>			
Roadway accidents eliminated due to Program	4.56	5.31	8.80
Number of rail passenger accidents associated with the Program	2.30	2.68	4.45

Accident Type	Existing Year (2018)	Opening Year (2024)	Future Year (2044)
Net number of accidents eliminated due to Program^a	2.26	2.63	4.35

Notes:

^a Difference between roadway accidents eliminated and rail passenger accidents associated with the Program.

Rates for fatal and injury accidents on roadways obtained from Caltrans, Table B - Selective Accident Rate Calculation, I-10 Los Angeles, San Bernardino, 36-month historical rates (2014).

Rates for rail-related accidents/incidents obtained from FRA Office of Safety Analysis (2019).

Caltrans=California Department of Transportation

As summarized in Table 3.3-16, the estimated net change in accidents with implementation of Build Alternative Option 1 is a reduction in fatalities by up to 0.08 per year (1 fatality eliminated every 12 years) and 4.72 injuries per year in 2044. As summarized in Table 3.3-17, the estimated net change in accidents with implementation of Build Alternative Option 2 or 3 is a reduction in fatalities by up to 0.07 per year (1 fatality eliminated every 12 years) and 4.35 injuries per year in 2044.

When compared with the No Build Alternative, effects related to traveler safety would be moderate within the Western and Eastern Section under Build Alternative Option 1. When compared with Build Alternative Option 1, Build Alternative Options 2 and 3 would have slightly reduced beneficial effects due to a shorter route alignment and reduced station options. However, the magnitude of effects would be similar and would be considered moderate when compared with the No Build Alternative.

3.3.6 NEPA Summary of Potential Effects

Table 3.3-18 through Table 3.3-22 summarize the qualitative assessment of potential effects (negligible, moderate, or substantial) under NEPA for each of the Build Alternative Options and presents a comparative overview of key metrics and how they measure against the No Build Alternative and each of the Build Alternative Options. For the purpose of this comparison, Future Year (2044) statistics are presented. While ridership, accident reduction, and VMT savings increase proportionally when the Program serves more communities (through more intermediate stations), travel time between the end points of the Program Corridor can increase to up to 13 minutes based on the number of stations east of Colton.

Table 3.3-18. NEPA Summary of Effects on Rail Operation

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

Notes:

- ^a The No Build Alternative includes existing and potential expansion of roadway, passenger rail, and air travel facilities within the Tier 1/Program EIS/EIR Study Area; however, for the service-level evaluation, identifying levels of effect from potential expansion of those facilities is speculative and would be dependent on Tier 2/Project-level analysis.

Table 3.3-19. NEPA Summary of Effects on Roadways/Vehicular Traffic

Alternative Options	Potential Intensity of Effect: Western Section	Potential Intensity of Effect: Eastern Section
No Build Alternative ^a	Construction: None Operation: None	Construction: None Operation: Substantial
Build Alternative Option 1 (Coachella Terminus)	Construction: Negligible Operation: Moderate	Construction: Moderate Operation: Substantial
Build Alternative Option 2 (Indio Terminus)	Construction: Negligible Operation: Moderate	Construction: Moderate Operation: Substantial

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

Notes:

- ^a The No Build Alternative includes existing and potential expansion of roadway, passenger rail, and air travel facilities within the Tier 1/Program EIS/EIR Study Area; however, for the service-level evaluation, identifying levels of effect from potential expansion of those facilities is speculative and would be dependent on Tier 2/Project-level analysis.

Table 3.3-20. NEPA Summary of Effects on Railroad/Roadway Crossings

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

Notes:

- ^a The No Build Alternative includes existing and potential expansion of roadway, passenger rail, and air travel facilities within the Tier 1/Program EIS/EIR Study Area; however, for the service-level evaluation, identifying levels of effect from potential expansion of those facilities is speculative and would be dependent on Tier 2/Project-level analysis.

Table 3.3-21. NEPA Summary of Effects on Traveler Safety

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

Notes:

- ^a The No Build Alternative includes existing and potential expansion of roadway, passenger rail, and air travel facilities within the Tier 1/Program EIS/EIR Study Area; however, for the service-level evaluation, identifying levels of effect from potential expansion of those facilities is speculative and would be dependent on Tier 2/Project-level analysis.

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Table 3.3-22. NEPA Summary of Effects on Ridership Forecast and Travel Time

Alternative Options	Annual Ridership (one-way trips)	Travel Time between LAUS and Eastern Terminus (hour:minute)	Annual Reduction of Accidents	Annual VMT Savings (million miles)	Annual Reduction of Auto Trips	Potential Intensity of Effect: Western Section	Potential Intensity of Effect: Eastern Section
No Build Alternative ^a	None	—	None	None	None	Construction: None Operation: Substantial	Construction: None Operation: Substantial
Build Alternative Option 1 (Coachella Terminus)	338,540	3:16	0.08 – Fatal 4.72 - Injury	17.4	178,045	Construction: Negligible Operation: Moderate	Construction: Negligible Operation: Moderate
Build Alternative Option 2 (Indio Terminus)	312,306	3:09	0.07 – Fatal 4.35 - Injury	16.1	164,248	Construction: Negligible Operation: Moderate	Construction: Negligible Operation: Moderate
Build Alternative Option 3 (Indio Terminus with Limited Third Track)	312,306	3:09	0.07 – Fatal 4.35 - Injury	16.1	164,248	Construction: Negligible Operation: Moderate	Construction: Negligible Operation: Moderate

Notes:

^a The No Build Alternative includes existing and potential expansion of roadway, passenger rail, and air travel facilities within the Tier 1/Program EIS/EIR Study Area; however, for the service-level evaluation, identifying levels of effect from potential expansion of those facilities is speculative and would be dependent on Tier 2/Project-level specific analysis.

LAUS=Los Angeles Union Station; VMT=vehicle miles traveled

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3.3.7 CEQA Summary of Potential Impacts

Based on the information provided in Section 3.3.4 and 3.3.5, and considering the CEQA Guidelines Appendix G Checklist questions for transportation, the Build Alternative Options are considered to have a potentially significant impact on transportation when reviewed on a Program-wide basis. Placing the infrastructure improvements and new stations largely within or along the existing ROW reduces the potential for significant impacts on transportation resources. However, because the sites have not been selected, some resources may be significantly impacted. At the Program analysis level, it is not possible to know the location, extent, and particular characteristics of impacts on these resources. Proposed programmatic mitigation strategies discussed in Section 3.3.8 would be applied to reduce potential impacts.

Table 3.3-23 describes the CEQA significance conclusions for the Build Alternative Options; the proposed programmatic mitigation strategies that would be applied to minimize, reduce, or avoid the potential impacts; and the significance determination after mitigation strategies are applied. The identification and implementation of additional site-specific mitigation measures necessary for Project implementation would occur as part of the Tier 2/Project-level analysis.

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Table 3.3-23. CEQA Summary of Impacts for Transportation

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<i>Would the Program conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?</i>		
<i>Construction</i>		
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 in the Western Section under Build Alternative Option 1, 2, or 3.	Not applicable	Not applicable
Eastern Section – Potentially Significant. Potentially significant impacts under Build Alternative Option 1, 2, or 3 are anticipated at the Tier 1/Program EIS/EIR evaluation level. Potential impacts are dependent on the location of new stations and rail infrastructure improvements, which are currently unknown. During construction, vehicular, pedestrian, and bicycle traffic may be affected due to temporary road closures and detours during construction-related activities. The Tier 2/Project-level analysis would further identify and evaluate impacts related to conflict with applicable plans, ordinances, or policies for the applicable circulation system.	TR-1 LU-2	Potentially Significant. TR-1 and LU-2 would minimize, reduce, or avoid potential impacts resulting from conflicts with Program plans, ordinances or policies through design and further analysis. However, impacts may remain significant and unavoidable, as further analysis may determine that there is a conflict that cannot be mitigated between land uses.
<i>Operation</i>		
Western Section – No Impact. The change in train service (two additional round-trip daily trains within the Program Corridor) would not change existing land use and would not conflict with a program plan, ordinance or policy addressing circulation. No impacts under Build Alternative Option 1, 2, or 3 are anticipated to occur at the Tier 1/Program EIS/EIR evaluation level.	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Potentially Significant. Potentially significant impacts under Build Alternative Option 1, 2, or 3 are anticipated at the Tier 1/Program EIS/EIR evaluation level. Potential impacts are dependent on the location of new stations and rail infrastructure improvements, which are currently unknown. Vehicular, pedestrian, and bicycle traffic may be affected due to permanent road closures during operation. The Tier 2/Project-level analysis would further identify and evaluate impacts related to conflict with applicable plans, ordinances, or policies for the applicable circulation system.</p>	<p>TR-1 LU-2</p>	<p>Potentially Significant. TR-1 and LU-2 would minimize, reduce, or avoid potential impacts resulting from conflicts with Program plans, ordinances or policies through design and further analysis. However, impacts may remain significant and unavoidable, as further analysis may determine that there is a conflict that cannot be mitigated between land uses.</p>
<p><i>Would the Program conflict with or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?</i></p>		
<p><i>Construction</i></p>		
<p>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 in the Western Section under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – Potentially Significant. Potentially significant impacts under Build Alternative Option 1, 2, or 3 are anticipated at the Tier 1/Program EIS/EIR evaluation level. Potential impacts associated with construction VMTs depend of the location of new stations and other rail infrastructure improvements, which are currently unknown. Construction of these improvements could require large scale construction activities over an extended period of time. A detailed construction VMT analysis cannot be considered at the Tier 1/Program EIS/EIR level because such an analysis at this stage would be too speculative, given the exact location and duration of construction associated with station facilities and other rail infrastructure improvements is unknown at this time. Therefore, potentially significant impacts under Build Alternative Option 1, 2, or 3 are anticipated at the Tier 1/Program EIS/EIR evaluation level. Site-specific impacts would be identified and evaluated during the Tier 2/Project-level analysis.</p>	<p>TR-1</p>	<p>Less Than Significant. TR-1 would minimize, reduce, or avoid potential impacts through design and further analysis during the Tier 2/Project-level environmental process.</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Operation		
<p>Western Section – Less Than Significant. The change in train service (two additional round-trip daily trains within the Program Corridor) would not change existing land use and is anticipated to result in a decrease in regional and local VMTs. Operation of the Program within the Western Corridor would enhance passenger rail services within an existing high-quality transit corridor. These factors are consistent with CEQA Guidelines section 15064.3 (b). Therefore, a less than significant impact under Build Alternative Option 1, 2, or 3 is anticipated to occur at the Tier 1/Program EIS/EIR evaluation level.</p>	Not applicable	Not applicable
<p>Eastern Section – Less Than Significant. Operation of two additional round-trip daily trains within the Eastern Section of the Program is anticipated to result in a decrease in regional and local VMTs. Operation of the Program within the Eastern Corridor would enhance passenger rail services within an existing high-quality transit corridor. These factors are consistent with CEQA Guidelines section 15064.3 (b). Therefore, a less than significant impact under Build Alternative Option 1, 2, or 3 is anticipated to occur at the Tier 1/Program EIS/EIR evaluation level.</p>	Not applicable	Not applicable
<p><i>Would the Program substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?</i></p>		
Construction		
<p>Western Section – No Impact. No construction impacts are anticipated during at the Tier 1/Program EIS/EIR evaluation level because no physical improvements are proposed or required in the Western Section under Build Alternative Option 1, 2, or 3.</p>	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Potentially Significant. Potentially significant impacts under Build Alternative Option 1, 2, or 3 are anticipated at the Tier 1/Program EIS/EIR evaluation level. Construction of the rail infrastructure improvements or station facilities have the potential to result in hazards from geometric design features or incompatible land uses. Therefore, potentially significant impacts under Build Alternative Option 1, 2, or 3 are anticipated at the Tier 1/Program EIS/EIR evaluation level. Site-specific impacts would be determined during the Tier 2/Project-level analysis.</p>	<p>TR-1 LU-2 SS-1</p>	<p>Less than Significant. TR-1, LU-2, and SS-1 would minimize, reduce, or avoid potential impacts resulting from design hazards by requiring coordination with emergency providers and railroad during construction and the preparation of a construction management plan. In addition, SS-1 would require station facilities to provide adequate safety features through design and further analysis prior to operation of the facility.</p>
<p>Operation</p>		
<p>Western Section – No Impact. The change in train service (two additional round-trip daily trains within the Program Corridor) would not change existing land use and would not increase hazards due to a geometric design feature or incompatible uses. No impacts under Build Alternative Option 1, 2, or 3 are anticipated to occur at the Tier 1/Program EIS/EIR evaluation level.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – No Impact. Once construction is complete, operation of Build Alternative Option 1, 2, or 3 would not increase hazards due to a geometric design feature or incompatible uses. Therefore, no impacts under Build Alternative Option 1, 2, or 3 are anticipated to occur at the Tier 1/Program EIS/EIR evaluation level.</p>	<p>Not applicable</p>	<p>Not applicable</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<i>Would the Program result in inadequate emergency access?</i>		
<i>Construction</i>		
<p>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 in the Western Section under Build Alternative Option 1, 2, or 3.</p>	Not applicable	Not applicable
<p>Eastern Section – Potentially Significant. Potentially significant impacts under Build Alternative Option 1, 2, or 3 are anticipated at the Tier 1/Program EIS/EIR evaluation level. Potential impacts are dependent on the location of new stations and infrastructure improvements, which are currently unknown. Construction of the rail infrastructure improvements or station facilities have the potential to result in inadequate emergency access if road closures or detours are proposed or if adequate access to new stations is not provided. Therefore, potentially significant impacts under Build Alternative Option 1, 2, or 3 are anticipated at the Tier 1/Program EIS/EIR evaluation level. Site-specific impacts would be determined during the Tier 2/Project-level analysis.</p>	<p>TR-1 LU-2 SS-1</p>	<p>Less than Significant. TR-1, LU-2, and SS-1 minimize, reduce, or avoid potential impacts resulting from inadequate emergency access by requiring coordination with emergency providers and railroad during construction. In addition, SS-1 would require station facilities to provide adequate emergency access through design and further analysis prior to operation of the facility.</p>
<i>Operation</i>		
<p>Western Section – Less Than Significant. The change in train service (two additional round-trip daily trains within the Program Corridor) would not change existing land use. During operations, in the event that there is a derailment or situation at a station facility, the accident or incident would be communicated to all rail operators in the area and any safety measures, cleanup, and emergency access would be under the control of local jurisdiction emergency responders with assistance from rail operators. Therefore, a less than significant impact under Build Alternative Option 1, 2, or 3 is anticipated to occur at the Tier 1/Program EIS/EIR evaluation level.</p>	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Less Than Significant. During operations, in the event that there is a derailment or situation at a station facility, the accident or incident would be communicated to all rail operators in the area and any safety measures, cleanup, and emergency access would be under the control of local jurisdiction emergency responders with assistance from rail operators. Therefore, a less than significant impact under Build Alternative Option 1, 2, or 3 is anticipated to occur at the Tier 1/Program EIS/EIR evaluation level.</p>	<p>Not applicable</p>	<p>Not applicable</p>

Notes:

CEQA=California Environmental Quality Act; EIS/EIR=environmental impact statement/environmental impact report; VMT=vehicle miles traveled

3.3.8 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. Proposed programmatic mitigation strategies, consistent with state and federal regulations, could include, but are not limited to, the following:

Mitigation Strategy TR-1: During Tier 2/Project-level analysis, a Project-specific traffic impact analysis shall be required for the sites identified for the specific rail infrastructure or station facility proposed. The traffic impact analysis shall be prepared using the standards and procedures of the applicable local jurisdiction(s) in which the Project is located. The traffic impact analysis may include, but will not be limited to, the following:

- Analysis of construction related traffic impacts including identification and analysis of:
 - Transportation management plans to mitigate construction-related traffic, including coordination with emergency providers
 - Alternative work windows or temporary construction features (e.g., shoo-fly) to minimize disruption to rail operations during construction
 - Coordination with railroad host, operators and the jurisdiction within which construction will occur
 - Identification of haul routes for construction trucks, construction traffic management strategies, and any re-routing of vehicular, pedestrian, and bicycle routes
- Analysis of operational-related traffic impacts including identification and analysis of:
 - Roadway network impacts and fair-share mitigation to mitigate impacts
 - Transportation system management/signal optimization, including retiming, rephrasing, and signal optimization; turn prohibitions; use of one-way street; and traffic diversion to alternative routes
- For station facilities, identification and analysis of:
 - Roadway network impacts associated with trips resulting from travel activity at stations
 - Station amenities (e.g., parking, alternative modes of transit features, ticketing, emergency access)

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 SS-1: During Tier 2/Project-level analysis, a Project-specific collision hazard analysis shall be required and would be prepared in coordination local jurisdictions in which the specific rail infrastructure or station facility is located. The collision hazard analysis shall be prepared in compliance with the Federal Railroad Administration’s *Collision Hazard Analysis Guide: Commuter and Intercity Passenger Service* (Federal Railroad Administration 2007), which provides a step-by-step procedure on how to perform a hazard analysis, and how to develop effective mitigation strategies that would improve passenger rail safety.

3.4 Visual and Aesthetic Resources

3.4.1 Introduction

This section identifies natural and built visual and aesthetic scenic resources within the Tier 1/Program EIS/EIR Study Area and evaluates the effects or impacts of the No Build Alternative and the Build Alternative Options on these resources. Information contained in this section is summarized from the *Visual and Aesthetics Technical Memorandum* (Appendix D of this Tier 1/Program EIS/EIR).

3.4.2 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 visual 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

Federal Highway Administration

The National Scenic Byways Program, Title 23, Section 162 of the USC, is part of U.S. Department of Transportation (USDOT), Federal Highway Administration (FHWA), which preserves and enhances identified roadways that possess certain cultural, historic, archaeological, scenic, natural, or recreational qualities. The National Scenic Byways Program designates roads as National Scenic Byways, All-American Roads, or America's Byways.

In addition, FHWA published a guidance document titled *Guidelines for the Visual Impact Assessment of Highway Projects* (FHWA 2015). This guidance presents an approach used to identify the importance of visual resources and assess the impact of effects on these resources.

National Park Service, 36 Code of Federal Regulations Parts 1-199 – Parks, Forests, and Public Property

Title 36 provides guidance for the proper use, management, government, and protection of persons, property, and natural and cultural resources within areas under the jurisdiction of the National Park Service. It fulfills the statutory purposes of units of the National Park System: to conserve scenery, natural and historic objects, and wildlife and to provide for the enjoyment of those resources in a

manner that would leave them unimpaired for the enjoyment of future generations. National parks, recreation areas, and federal heritage areas are regulated by the National Parks Service.

State

California Department of Transportation, Senate Bill 1467, Streets and Highways Code, Sections 260-263

Scenic highways are identified in SB 1467, Section 263 of the Streets and Highways Code. SB 1467 places the Scenic Highway Program under the stewardship of Caltrans. It establishes the state's responsibility for the protection and enhancement of California's natural scenic beauty by identifying those portions of the state highway system which, together with adjacent scenic corridors, require special conservation treatment.

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.

3.4.3 Methods for Evaluating Environmental Effects

The methodology for this evaluation consists of using existing data to identify natural and built visual and aesthetic scenic resources within the Tier 1/Program EIS/EIR Study Area for each Build Alternative Option and evaluating the potential level of effect that each Build Alternative Option could have if constructed. Visual and aesthetic resources include features of both the built and natural environment that together make the visual environment, such as parks, natural areas, scenic features, open vistas, water bodies, and other landscape features. Historic or urban core districts can also be visual resources. All of these visual resources create aesthetic qualities that are valued by viewers.

Visual and aesthetic resources are often described in terms of their visual quality. Visual quality is an attribute or characteristic based on professional, public, or personal values, as well as the intrinsic physical properties of the landscape. Visual quality is influenced by the visual character of elements within the affected environment and what viewers like or dislike about a particular landscape. Visual and aesthetic effects result from changes in the visual landscape and the viewer's response or sensitivity to those changes.

Because specific locations of new visual elements, such as elevated structures, stations, grade separations, and noise barriers, are not known at the Tier 1/Program phase of the environmental review process, a qualitative evaluation of potential effects within the Tier 1/Program EIS/EIR Study Area is provided, including potential for blocking views, changes in visual character, and changes in light and glare. A detailed evaluation would be completed for the future Tier 2/Project-level analysis.

Tier 1/Program EIS/EIR Study Area

This service-level evaluation is limited to a desktop evaluation of the data sources described in Section 3.4.3. The Tier 1/Program EIS/EIR Study Area was combined with GIS overlays to identify potential natural and built visual and aesthetic scenic resources that could be affected by the Program. These potential resources 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.

For this service-level visual assessment, the Tier 1/Program Study Area includes the viewshed of each Build Alternative Option. The viewshed is defined by the views of passengers and/or defined as the area that can be seen from the limits of the infrastructure improvements, and therefore would have a view of the infrastructure improvements. The viewshed is defined by the physical constraints of the environment and the physiological limits of human sight. Physical constraints of the environment include landform, land cover, and atmospheric conditions. Landform is a major factor in determining the viewshed because it can limit views or provide an elevated perspective for viewers. Similarly, land cover, such as trees and buildings, can limit views, while low-growing vegetation and the absence of structures can allow for unobscured views. Atmospheric conditions such as smoke, dust, fog, or precipitation can temporarily reduce visibility.

The viewshed is limited in many locations because of intervening topography, vegetation, structures, or other factors. The viewshed encompasses the potential area where physical changes may occur, including new infrastructure improvements for sidings, additional main line track, wayside signals, drainage, grade-separation structures, and stations. The context area allows for the characterization of the visual environment in which potential physical changes may occur. The larger context area is assessed as part of a context-sensitive approach to designing project features, which would be employed for the Tier 2/Project-level analysis to identify potential mitigation that are compatible with the broader surrounding environment.

Data Sources

Online GIS data available from Caltrans, the U.S. Department of the Interior, and a variety of other sources were used to identify visual and aesthetic resources with the potential to occur within the Tier 1/Program EIS/EIR Study Area. Specifically, the following resources were reviewed:

- **Scenic highways:** To identify designated state scenic highways, the Caltrans California State Scenic Highway System Map (Caltrans 2018) was consulted.
- **Historic districts and sites:** To identify sites present within the Program Corridor, the National Park Service – U.S. Department of the Interior National Register of Historic Places (NRHP) Interactive Map (U.S. Department of Interior 2020a) was consulted.
- **Federal lands:** To identify Federal lands within the Program Corridor, the California Map of Federal Lands (U.S. Department of Interior 2020b) was consulted.
- **Nighttime lighting policy areas:** To identify areas within the Mount Palomar Nighttime Lighting Policy Area, the Western Coachella Valley Area Plan (County of Riverside 2019) was consulted.

Related Resources

This evaluation incorporates data and evaluation from related resources to contribute to the assessment of effects on visual and aesthetic resources. These related resources are identified in Table 3.4-1.

Table 3.4-1. Related Resource Inputs for Visual and Aesthetic Resources

Resource	Input for Visual and Aesthetics Assessment
Land Use and Planning (Section 3.2)	General information about the land use types and delineation of areas where there may be open vistas or natural/human made landscape features were used for additional evaluation.
Transportation (Section 3.3)	Locations of existing and proposed passenger rail station catchment areas were used to assess potential effects on existing or proposed land use classifications.
Noise and Vibration (Section 3.6)	Supplemental information to identify areas with increased noise and vibration levels that may identify areas where future mitigation may result in some type of noise/vibration barrier was used.
Biological Resources (Section 3.8)	Distinct natural features or wildlife areas were identified.

Resource	Input for Visual and Aesthetics Assessment
Floodplains, Hydrology, and Water Quality (Section 3.9)	Hydrologic features (major rivers, streams, etc.) that may be distinct landscape features across all land cover classifications were identified.
Cultural Resources (Section 3.13)	Supplemental information about listed historic sites (archaeological or architectural) within the affected environment was used to assess the potential effects and/or areas of concern.
Parklands and Community Services (Section 3.14)	Supplemental information about parklands, including type and accessibility that may provide visual and aesthetic resources, was used.

3.4.4 Affected Environment

The Program Corridor crosses a large geographic area within Southern California, spanning a distance of approximately 144 miles from its western terminus in Los Angeles to its eastern terminus in Coachella. The topography crossed by the Program Corridor ranges from relatively flat, urban landscapes in the Western Section of the Program, to hilly canyons in the central portion, and flat, low desert habitat in the east.

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 of the Tier 1/Program Study Area, although some areas occur in or adjacent to lands that are in a natural condition.

Elements of the urban and suburban landscape dominate the visual environment within the Western Section of the Program Corridor, as these areas are mostly developed and the topography generally flat. At the eastern end of the Western Section of the Program Corridor, there are nearby hills and mountains visible from the existing railroad corridor. Land uses in the Western Section are a mixture of urban uses, including industrial, commercial, institutional, residential, and smaller amounts of other uses. Although the majority of land uses within the Western Section of the Program Corridor are urban, there are areas dedicated to open space and recreation uses, including Yorba Linda Regional Park, Green River Golf Course, and Prado Regional Park. The Program Corridor also crosses numerous waterways, including rivers such as the Los Angeles and Santa Ana Rivers, the Prado Flood Control Basin, and many smaller creeks and drainages, as well as numerous transportation corridors, including rail, highways, and local roadways. Regional highways in the Western Section of the Program Corridor include I-10, SR 60, and SR 91. As shown on Figure 3.4-1, there are no designated scenic highways within the Western Section of the Program Corridor. However, the Program Corridor crosses through the Juan Bautista de Anza Trail, a national

historic trail near Riverside and through the Grand Boulevard Historic District, a National Register Historic District near Corona. In addition, the Western Section of the Program Corridor contains six NRHP sites.

The Program Corridor in the Eastern Section follows the existing UP ROW from Colton to Coachella, with the topography becoming more varied while traveling east. There are nearby hills and mountains, which are visible from the Program Corridor but outside of the viewshed and context Tier 1/Program Study Area established in this Tier 1/Program EIS/EIR evaluation. Much of the viewshed between the urban areas of Loma Linda and Beaumont is characterized by agriculture, open space, recreation, and vacant land uses. East of Beaumont, much of the land is categorized as vacant with large areas of open space.

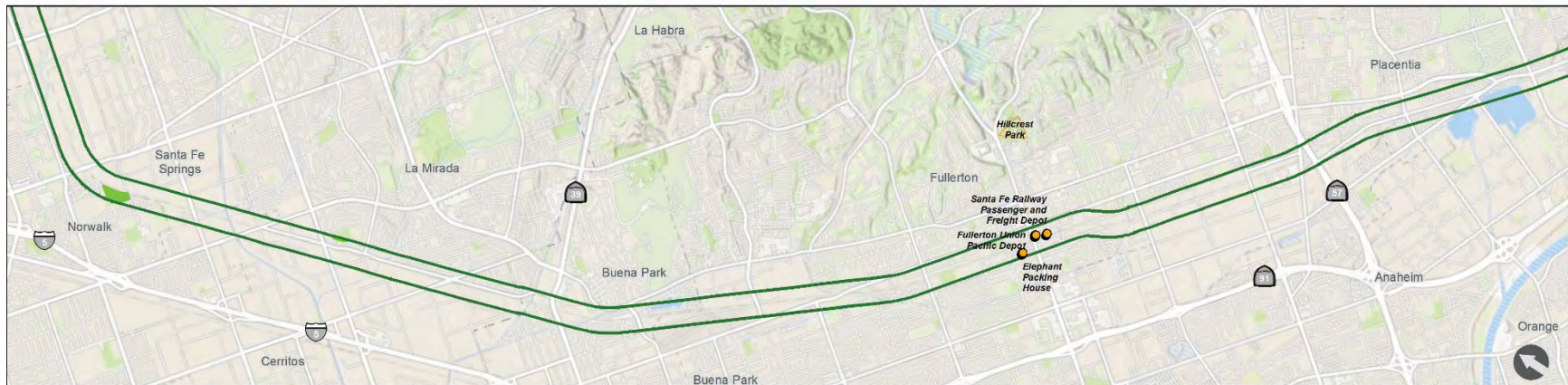
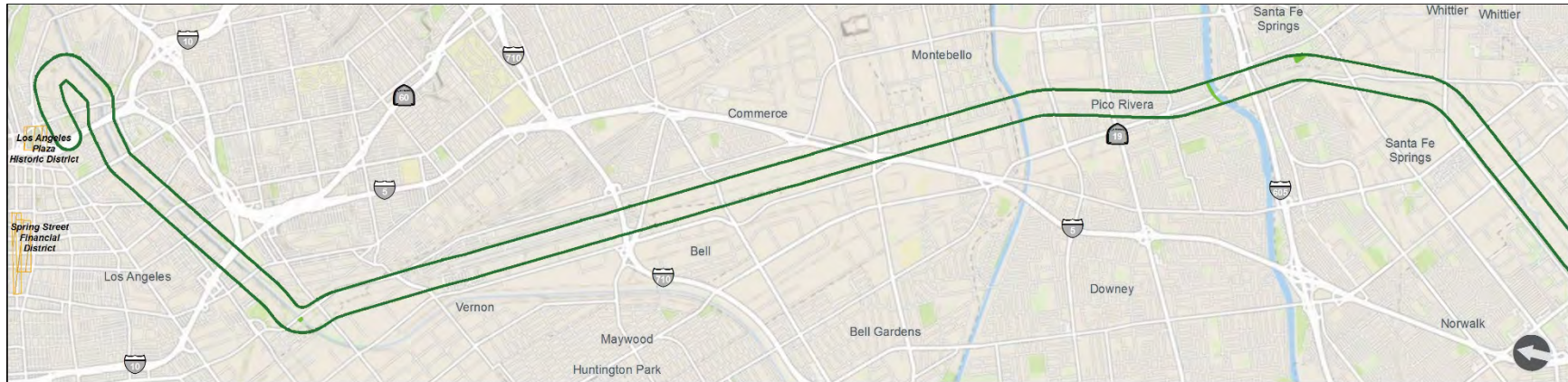
The Program Corridor in the Eastern Section crosses many small creeks and drainage ways, although most of the hydrological features are dry except after heavy rainfall. The Program Corridor also contains natural habitat areas located in San Timoteo Canyon between Redlands and Banning, the Santa Rosa-San Jacinto Mountains National Monument east of Cabazon, and the Sonoran Desert area

Within the Eastern Section, the Program Corridor crosses numerous transportation corridors, including rail, highways, and local roadways, including I-10, SR 60, and SR 111. As shown on Figure 3.4-1, there are no designated scenic highways within the Eastern Section of the Program Corridor. However, the Program Corridor crosses through the Pacific Crest Trail, a national scenic trail, near Palm Springs. In addition, the Eastern Section of the Program Corridor contains one NRHP site.

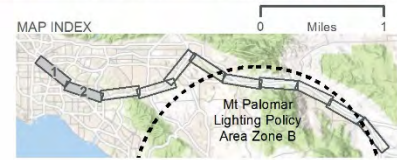
Figure 3.4-1 provides broad scale mapping of visual resources within the Tier 1/Program EIS/EIR Study Area.

Figure 3.4-1. Visual Resources within the Tier 1/Program EIS/EIR Study Area

(Page 1 of 6)



- Eastern Section - Potential Station Area: 1,500-foot Study Area from either side of the railroad centerline
- Eastern Section - 800-foot Study Area from either side of the railroad centerline
- Western Section - 600-foot Study Area from either side of the railroad centerline
- Park
- National Register of Historic Places
- National Register Historic Districts
- Eligible Scenic Highway
- Designated Scenic Highway
- Juan Bautista de Anza National Historic Trail
- Pacific Crest Trail
- Santa Rosa-San Jacinto Mountains National Monument
- Mt Palomar Lighting Policy Area Zone B



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Figure 3.4-1. Visual Resources within the Tier 1/Program EIS/EIR Study Area

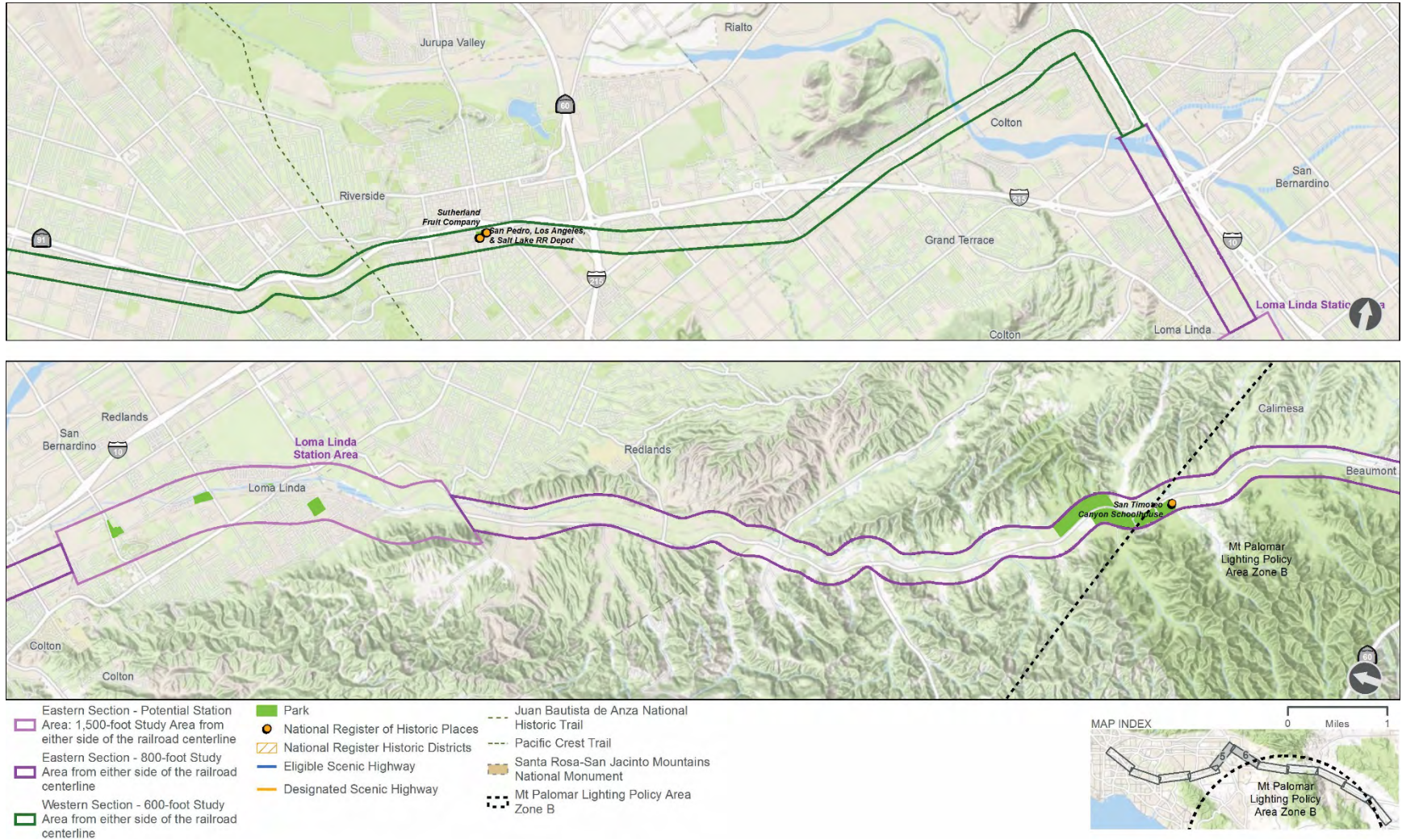
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Figure 3.4-1. Visual Resources within the Tier 1/Program EIS/EIR Study Area

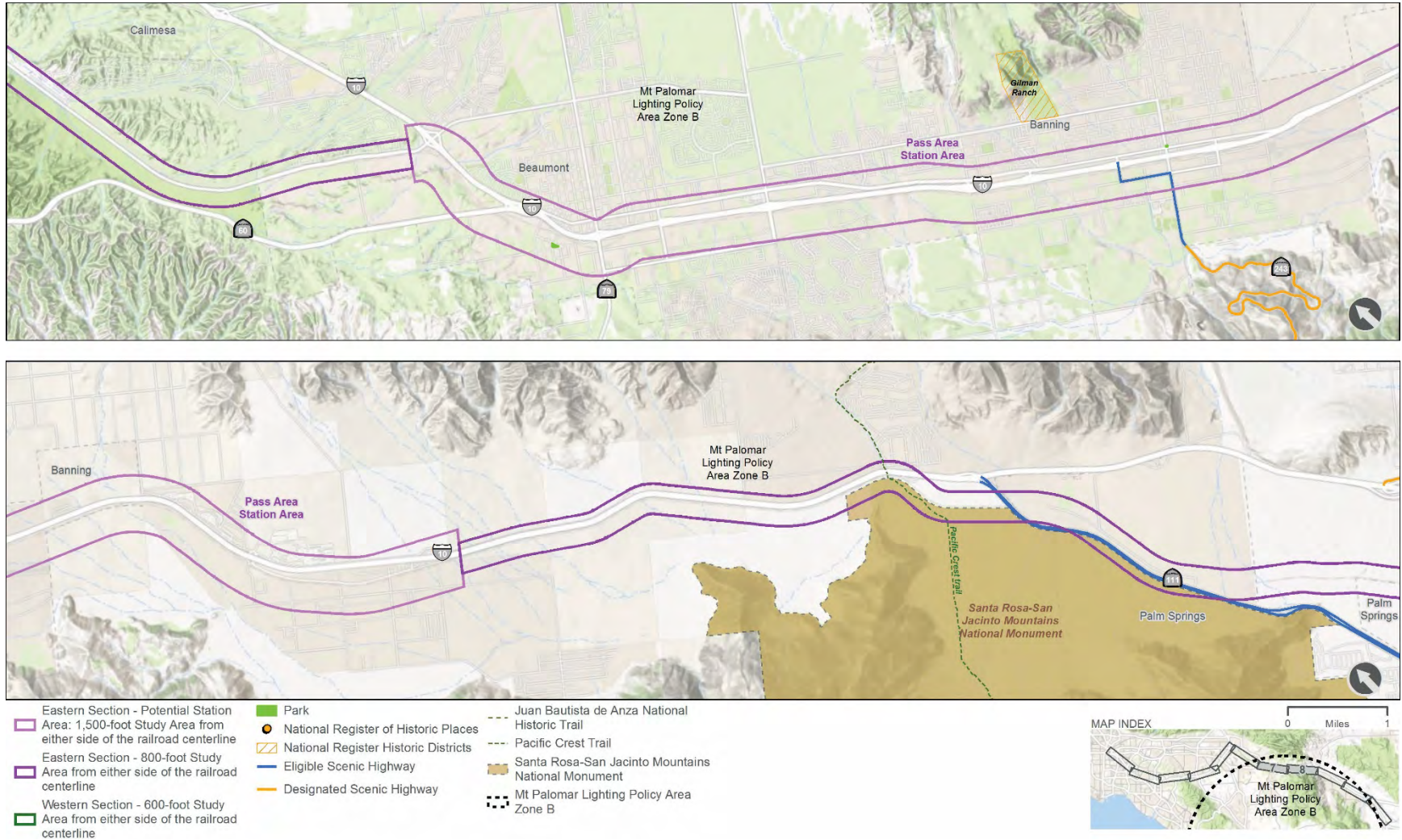
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Figure 3.4-1. Visual Resources within the Tier 1/Program EIS/EIR Study Area

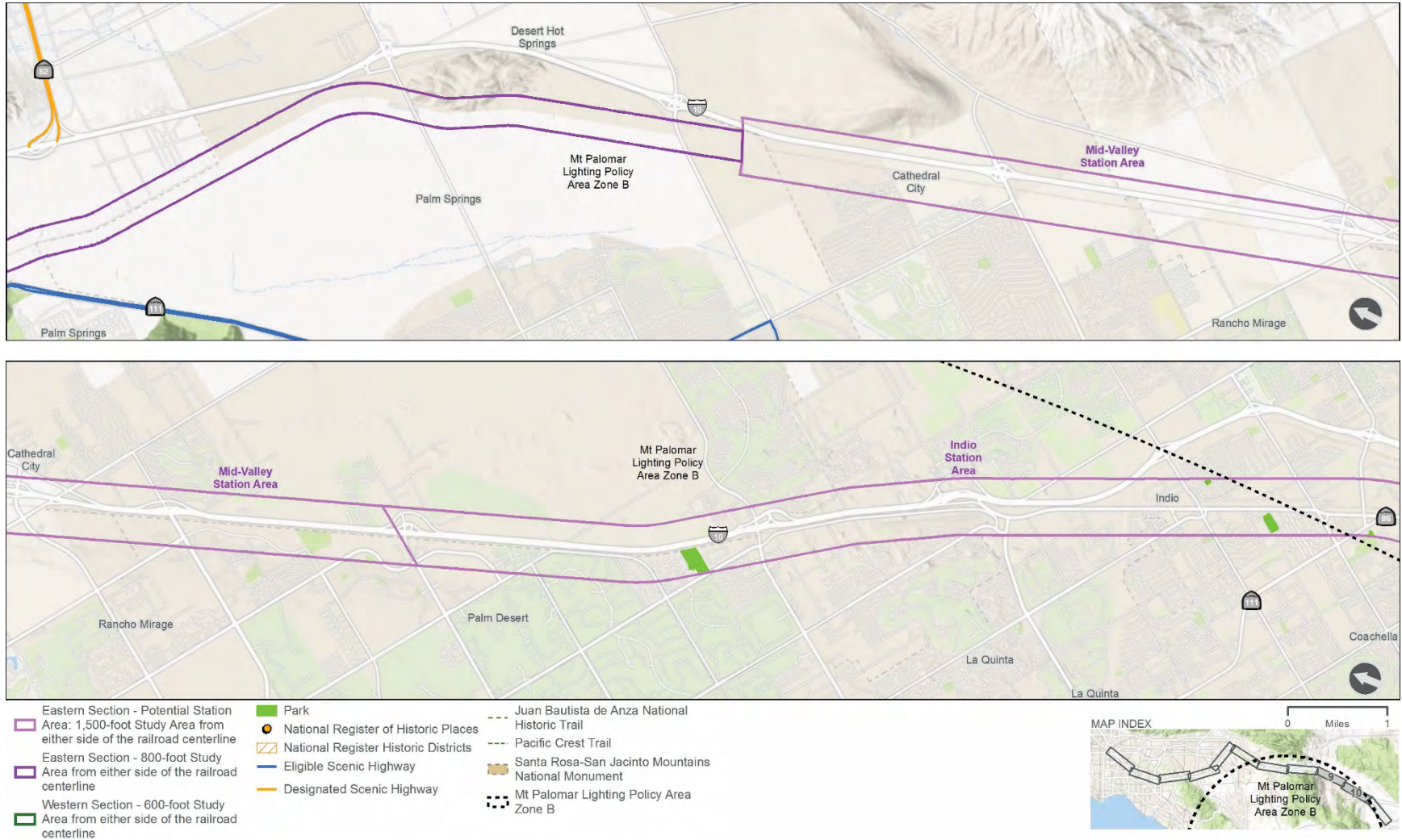
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Figure 3.4-1. Visual Resources within the Tier 1/Program EIS/EIR Study Area

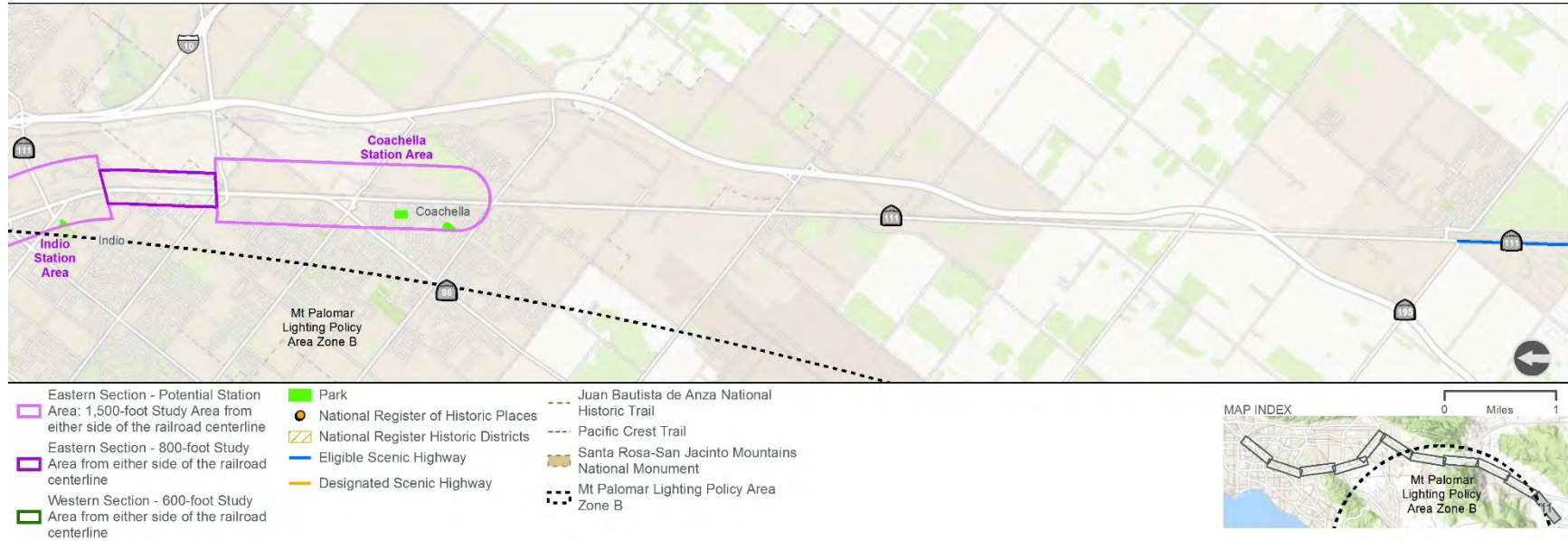
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Figure 3.4-1. Visual Resources within the Tier 1/Program EIS/EIR Study Area

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Build Alternative Option 1 (Coachella Terminus)

As summarized in Table 3.4-2, there are 18 visual resources consisting of parks, trails, and NRHP sites within the Western Section of Build Alternative Option 1. As summarized in Table 3.4-2, there are 17 visual resources consisting of consisting of parks, trails, and a NRHP site within the Eastern Section of Build Alternative Option 1.

Table 3.4-2. Summary of Visual Resources (Build Alternative Option 1)

Visual Resource	Number of Resources within Western Section	Number of Resources within Eastern Section	Total Number of Resources
Park/trail	11	16	27
Designated scenic highway	0	0	0
NRHP site	6	1	7
NRHP district	1	0	1

Notes:

NRHP=National Register of Historic Places

Build Alternative Option 2 (Indio Terminus)

As summarized in Table 3.4-3, there are 18 visual resources consisting of parks, trails, and NRHP sites within the Western Section of Build Alternative Option 2. As summarized in Table 3.4-3, there are 15 visual resources consisting of consisting of parks, trails, and a NRHP site within the Eastern Section of Build Alternative Option 2. There are fewer parklands within Build Alternative Option 2 because of the shorter route alignment and reduced station options.

Table 3.4-3. Summary of Visual Resources (Build Alternative Options 2 and 3)

Visual Resource	Number of Resources within Western Section	Number of Resources within Eastern Section	Total Number of Resources
Park/trail	11	14	25
Designated scenic highway	0	0	0
NRHP site	6	1	7

Visual Resource	Number of Resources within Western Section	Number of Resources within Eastern Section	Total Number of Resources
NRHP district	1	0	1

Notes:

NRHP=National Register of Historic Places

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

The affected environment within Build Alternative Option 3 is the same as Build Alternative Option 2.

3.4.5 Environmental Consequences

Overview

Effects as a result of implementing the Build Alternative Options can be broadly classified into construction and operation effects. Long-term or permanent effects and short-term or temporary effects on visual and aesthetic resources would be anticipated as a result of constructing any of the Build Alternative Options.

Viewer groups in the viewshed are as varied as the land uses. Generally, the most sensitive viewer groups are those who can see the Program Corridor from their residences and have a sense of familiarity and ownership of the view, and recreational viewers at parks, trails, and other recreational areas because of their relationship with the view during their recreational activity and often their expectations of an aesthetically pleasing view. Because the Build Alternative Options would use existing railroad ROWs, it would introduce limited changes to existing aesthetic and visual conditions and visual quality. In areas where new tracks, roadway crossings, stations, and station supporting infrastructure would be constructed, the Build Alternative Options could change the aesthetic and visual conditions of adjacent areas, but the likelihood of the changes reducing visual quality would be low.

The Build Alternative Options are proposed to be located within or next to existing rail or transportation corridors, where the presence of additional tracks would not be out of character for a transportation corridor containing major infrastructure elements that are currently part of the view landscape.

No Build Alternative

The No Build Alternative, as described in Chapter 2, Program Alternatives, of this Tier 1/Program EIS/EIR 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 on views of visual resources, visual character or quality, or light and glare conditions are anticipated under the No Build Alternative.

Build Alternative Options 1, 2, and 3

Visual Resources and Visual Character 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, short-term/temporary effects on scenic vistas, visual resources, or visual character would be negligible because no additional construction activities are planned within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Temporary effects on visual resources and the landscape would occur during construction within the Eastern Section of the Program Corridor under Build Alternative Option 1. These changes would include views of construction equipment, dust, material stockpiling, nighttime construction lighting and glare, and construction and detour signage. When compared with the No Build Alternative, the temporary visual changes associated with Build Alternative Option 1 would have negligible effects on the visual quality, as construction activities would not permanently obstruct views of the landscape, change the visual character, or result in degradation of visual quality within the Eastern Section of the Program Corridor. When compared with Build Alternative Option 1, Build Alternative Option 2 would have slightly reduced construction effects due to a shorter route alignment and reduced station options (i.e., less construction activity and, as such, fewer visual quality and aesthetic effects). 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 would be considered negligible when compared with the No Build Alternative.

OPERATION

Western Section. Operation of Build Alternative Option 1, 2, or 3 within the Western Section would not result in effects on existing visual resources as the additional train trips would travel within an existing railroad ROW. When compared with the No Build Alternative, long-term/permanent effects on scenic vistas, visual resources, or visual character, would be negligible because no additional infrastructure improvements are planned within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Permanent visual changes (physical elements) that could result from implementation of the Build Alternative Option 1 could include the presence of new railroad track, bridges, grade crossing, train stations, parking facilities, noise walls, open cuts, cut-and-fill areas, retaining walls, removed vegetation, and night lighting. The precise location, quantity, and design of these physical elements and the visual changes associated with them are not known at this time.

Because the infrastructure improvements would be located along the existing railroad ROW, the infrastructure improvements would generally not represent a change in visual character from existing conditions. However, effects could occur if the improvements would remove structures or landscaping or introduce visual elements that are out-of-scale or otherwise visually incompatible with the existing visual character. This would most likely occur if substantial ROW widening was necessary at grade separations or at stations and associated parking areas.

Effects associated with the Eastern Section of Build Alternative Option 1 on visual character would be moderate when compared with the No Build Alternative. When compared with Build Alternative Option 1, Build Alternative Option 2 would have slightly reduced effects on visual character due to a shorter route alignment and reduced station options. However, the magnitude of effects would be similar and would 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 would be considered moderate when compared with the No Build Alternative. Site-specific, long-term/permanent effects would be considered during Tier 2/Project-level analysis once details for the needed rail and station infrastructure are known.

Light and Glare Effects

CONSTRUCTION

Western Section. The Build Alternative Options would not require construction of additional rail or station infrastructure in the Western Section of the Program Corridor because the existing railroad ROW and stations from LAUS to Colton would be used. When compared with the No Build

Alternative, short-term/temporary effects on light and glare would be negligible because no additional construction activities are planned within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Temporary effects on visual resources and the landscape could occur during construction within the Eastern Section of the Program Corridor under Build Alternative Option 1. The construction of passenger rail infrastructure and station facilities may require nighttime work that would require lighting for safety and security. Potential staging and storage areas would also require temporary lighting for safety and security purposes; however, these effects would be temporary and construction would not permanently obstruct views of the landscape, change the visual character, or result in degradation of visual quality within the Eastern Section. Therefore, effects associated with the Eastern Section of Build Alternative Option 1 on light and glare would be negligible when compared with the No Build Alternative. When compared with Build Alternative Option 1, Build Alternative Option 2 would have slightly reduced effects on light and glare due to a shorter route alignment and reduced station options; however, the magnitude of effects would be similar and would be 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 would be considered negligible when compared with the No Build Alternative.

OPERATION

Western Section. Passenger train frequencies proposed as part of the Program would consist of adding four daily one-way trips (two daily round trips) operating the entire length of the Program Corridor between Los Angeles and Coachella. Train services currently operating on the existing railroad ROW require the use of train headlamps for safety and security. The addition of two daily round trips would not change the type or intensity of train light that would be used. When compared with the No Build Alternative, long-term/permanent effects on light and glare would be negligible because no additional infrastructure improvements are planned, and existing lighting sources within the Western Section would not change under Build Alternative Options 1, 2, and 3.

Eastern Section. Lighting at stations and parking lots could result in increased light levels or spillover lighting into adjacent areas. Site-specific effects would be considered during Tier 2/Project-level analysis. The addition of grade separations, which would be identified during the Tier 2/Project-level analysis process, could result in roadway alignments that may result in headlight glare effects on adjacent uses above those under existing conditions. Materials used for the infrastructure improvements or stations would be unlikely to introduce substantial sources of glare. Station design would be consistent with local codes and guidelines, where applicable. Therefore, effects associated

with the Eastern Section of Build Alternative Option 1 on light and glare would be moderate when compared with the No Build Alternative. When compared with Build Alternative Option 1, Build Alternative Option 2 would have slightly reduced effects on light and glare due to a shorter route alignment and reduced station options. However, the magnitude of effects would be similar and would 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 would be considered moderate when compared with the No Build Alternative.

Site-specific long-term/permanent effects would be considered during Tier 2/Project-level analysis once details for the needed rail and station infrastructure are known.

3.4.6 NEPA Summary of Potential Effects

Table 3.4-4 summarizes the qualitative assessment of potential effects (negligible, moderate, or substantial) under NEPA for each of the Build Alternative Options. This service-level analysis uses the Tier 1/Program EIS/EIR Study Area to determine the types of visual resources that may be affected and, more importantly, the relative magnitude of the effect. Specific mitigation measures to reduce effects would be analyzed at the Tier 2/Project-level environmental process.

Table 3.4-4. NEPA Summary of Effects on Visual and Aesthetic Resources

Alternative Option	Total Number of Resources	Park/Trail	Designated Scenic Highway	NRHP Site	NRHP District	Potential Intensity of Effect: Western Section	Potential Intensity of Effect: Eastern Section
No Build Alternative ^a	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Construction: None Operation: None	Construction: None Operation: None
Build Alternative Option 1 (Coachella Terminus)	35	27	0	7	1	Construction: Negligible Operation: Negligible	Construction: Negligible Operation: Moderate
Build Alternative Option 2 (Indio Terminus)	33	25	0	7	1	Construction: Negligible Operation: Negligible	Construction: Negligible Operation: Moderate
Build Alternative Option 3 (Indio Terminus with limited third track)	33	25	0	7	1	Construction: Negligible Operation: Negligible	Construction: Negligible Operation: Moderate

Notes:

^a The No Build Alternative includes existing and potential expansion of roadway, passenger rail, and air travel facilities within the Tier 1/Program EIS/EIR Study Area; however, for the service-level evaluation, identifying levels of effect from potential expansion of those facilities is speculative and would be dependent on Tier 2/Project-level specific analysis.

NRHP=National Register of Historic Places

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3.4.7 CEQA Summary of Potential Impacts

Based on the information provided in Section 3.4.4 and 3.4.5, and considering the CEQA Guidelines Appendix G Checklist questions for aesthetics and visual resources, the Build Alternative Options would have a potentially significant visual or aesthetic impact when reviewed on a Program-wide basis. Placing the infrastructure improvements and new stations largely within or along the existing ROW reduces the potential for significant impacts to these resources; however, because the sites have not been selected, some visual resources may be significantly impacted. At the programmatic level of evaluation, it is not possible to precisely know the location, extent, and particular characteristics of impacts on these resources. Proposed programmatic mitigation strategies discussed in Section 3.4.8 would be applied to reduce potential impacts.

Table 3.4-5 summarizes the CEQA significance conclusions for the Build Alternative Options; the proposed programmatic mitigation strategies that could be applied to minimize, reduce, or avoid potential impacts; and the significance determination after mitigation strategies are applied. The identification and implementation of additional site-specific mitigation measures necessary for Project implementation would occur as part of the Tier 2/Project-level analysis.

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Table 3.4-5. CEQA Summary of Impacts for Visual Quality and Aesthetics Resources

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<i>Would the Program have a substantial adverse effect on a scenic vista?</i>		
<i>Construction</i>		
Western Section - No Impact. No impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level because no physical improvements are proposed or required under Build Alternative Option 1, 2, or 3.	Not applicable	Not applicable
Eastern Section – Less Than Significant. Temporary impacts on visual resources and the landscape would occur during construction activities within the Eastern Section of the Program Corridor. These changes would include views of construction equipment, dust, material stockpiling, and construction and detour signage. However, construction activities would not permanently obstruct views of the landscape, change the visual character, or result in degradation of visual quality within the Eastern Section of the Program Corridor. A less than significant impact is anticipated at the Tier 1/Program EIS/EIR evaluation level in the Eastern Section under Build Alternative Option 1, 2, or 3.	Not applicable	Not applicable
<i>Operation</i>		
Western Section - No Impact. The change in train service (two additional round-trip daily trains within the Program Corridor) would occur within an existing rail corridor that would not require changes in existing zoning or land use. Operation of the Program would not have a substantial impact on a scenic vista within the Western Section of Program Corridor. Therefore, no impacts under Build Alternative Option 1, 2, or 3 are anticipated.	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section - Potentially Significant. Potential impacts on scenic vistas depend on the location of new stations, grade separations, and sound barriers, which are currently unknown. Visual impacts may occur if these new structures block views of important scenic vistas. However, the stations would be generally located adjacent to the existing rail line and are anticipated to occur in urbanized areas. Site-specific impacts would be considered during the Tier 2/Project-level analysis.</p>	<p>VIS-1</p>	<p>Potentially Significant. VIS-1 would minimize, reduce, or avoid impacts on scenic vistas by identifying design alternatives (e.g., undercrossings instead of overcrossings where scenic vistas might be blocked) or material alternatives (e.g., see-through materials for noise barriers) that would preserve existing views of scenic vistas. However, impacts may remain significant and unavoidable as further analysis may determine that there is a conflict that cannot be mitigated between land uses.</p>
<p><i>Would the Program substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic building within a state scenic highway?</i></p>		
<p><i>Construction</i></p>		
<p>Western Section - No Impact. No impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level because no physical improvements are proposed or required under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section - No Impact. The Eastern Section of the Program Corridor does not cross or include designated scenic highways. Therefore, construction activities would not result in impacts on scenic resources, including, but not limited to, trees, rock outcroppings, and historic building within a state scenic highway. No impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level in the Eastern Section under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Operation		
<p>Western Section - No Impact. The Western Section of the Program Corridor does not cross or include designated scenic highways. Therefore, the change in train service (two additional round-trip daily trains within the Program Corridor) would not result in impacts on scenic resources, including, but not limited to, trees, rock outcroppings, and historic building within a state scenic highway. No impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level in the Western Section under Build Alternative Option 1, 2, or 3.</p>	Not applicable	Not applicable
<p>Eastern Section – No Impact. The Eastern Section of the Program Corridor does not cross or include designated scenic highways. Therefore, the change in train service (an additional 2 daily trips within the Program Corridor) would not result in impacts on scenic resources, including, but not limited to, trees, rock outcroppings, and historic building within a state scenic highway. No impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level in the Eastern Section under Build Alternative Option 1, 2, or 3.</p>	Not applicable	Not applicable
<p><i>Would the Program substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the Program is in an urbanized area, would the Program conflict with applicable zoning and other regulations governing scenic quality?</i></p>		
Construction		
<p>Western Section - No Impact. No impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level because no physical improvements are proposed or required under Build Alternative Option 1, 2, or 3.</p>	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Less Than Significant. Temporary impacts on visual resources and the landscape would occur during construction activities within the Eastern Section of the Program Corridor. These changes would include views of construction equipment, dust, material stockpiling, and construction and detour signage. However, construction activities would not permanently obstruct views of the landscape, change the visual character, or result in degradation of visual quality within the Eastern Section of the Program Corridor. A less than significant impact is anticipated at the Tier 1/Program EIS/EIR evaluation level in the Eastern Section under Build Alternative Option 1, 2, or 3.</p>	Not applicable	Not applicable
Operation		
<p>Western Section - No Impact. The change in train service (two additional round-trip daily trains within the Program Corridor) would occur within an existing rail corridor that would not require changes in existing zoning or land use. Operation of the Program would not substantially degrade the existing visual character or quality of public views or conflict with applicable zoning and other regulations governing scenic quality within the Western Section of Program Corridor. Therefore, no impacts under Build Alternative Option 1, 2, or 3 are anticipated.</p>	Not applicable	Not applicable
<p>Eastern Section - Potentially Significant. Potential impacts on the existing visual character or quality depend on the location of new stations, which are currently unknown. Significant impacts could occur if the improvements would remove existing structures or landscaping that contribute to a high level of visual character, or if they introduce visual elements that are out-of-scale or otherwise visually incompatible with the existing visual character. This would be most likely to occur if substantial ROW widening was necessary, at grade separations, or at stations and associated parking areas. Site-specific impacts would be considered during the Tier 2/Project-level analysis.</p>	VIS-1	<p>Potentially Significant. VIS-1 would minimize, reduce, or avoid impacts on visual character or quality by identifying design or material alternatives that avoid altering the existing visual character. However, impacts may remain significant and unavoidable as further analysis may determine that there is a conflict that cannot be mitigated between land uses.</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Would the Program create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?		
Construction		
Western Section - No Impact. No construction lighting or glare impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level because no physical improvements are proposed. or required in the Western Section under Build Alternative Option 1, 2, or 3.	Not applicable	Not applicable
Eastern Section - Potentially Significant. Nighttime construction lighting may be required for construction staging and storage areas and during nighttime construction activities. Potential impacts would be temporary under Build Alternative Option 1, 2, or 3. Site-specific impacts would be considered during the Tier 2/Project-level analysis.	VIS-2	Less than Significant. VIS-2 would minimize, reduce, or avoid, impacts from a new source of substantial light and glare by minimizing light spillover and evaluating and addressing potential nighttime impacts from light sources during design through the preparation of a construction lighting plan.
Operation		
Western Section – Less Than Significant. The change in train service (two additional round-trip daily trains within the Program Corridor) would occur within an existing rail corridor that currently experiences lighting from travelling trains. Operation of the Program would not create a new source of substantial light or glare which would adversely affect day or nighttime views within the Western Section of the Program Corridor. Therefore, impacts associated with light and glare under Build Alternative Option 1, 2, or 3 are anticipated to be less than significant.	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section - Potentially Significant. Potential impacts related to light and glare depend on new station locations and infrastructure improvements, which are currently unknown. During operation, the addition of grade separations could result in roadway alignments that may result in headlight glare impacts on adjacent uses. Lighting at stations and parking lots could result in increased light levels or spillover lighting into adjacent areas. Site-specific impacts would be considered during Tier 2/Project-level analysis.</p>	<p>VIS-1</p>	<p>Potentially Significant. VIS-1 and would minimize, reduce, or avoid impacts from a new source of substantial light and glare by minimizing light spillover and evaluating and addressing potential impacts from light sources during design and through the preparation of an operational lighting plan. However, impacts may remain significant and unavoidable as further analysis may determine that there is a conflict that cannot be mitigated between land uses.</p>

Notes:

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

3.4.8 Avoidance, Minimization, and Mitigation Strategies

Identified below are proposed programmatic mitigation strategies for further consideration in the Tier 2/Project-level analysis. Examples of programmatic mitigation strategies for visual and aesthetic resources would include the use of context-sensitive design features for ancillary facilities and incorporation of natural screening, such as landscaping or buffers. Coordination with local agencies and stakeholders would occur to develop Project-specific mitigation measures during the Tier 2/Project-level analysis after design details are known. Proposed programmatic mitigation strategies or design considerations, consistent with state and federal regulations, include, but are not limited to the following:

Mitigation Strategy VIS-1: During the Tier 2/Project-level environmental process, the identified lead agency or agencies shall conduct an inventory of visual or aesthetic resources at the location of specific rail infrastructure and station facility proposed. If visual or aesthetic resources are present, the identified lead agency or agencies shall undertake an analysis associated with the specific rail infrastructure and station facility proposed. The analysis shall include, but not be limited to, the following:

- Infrastructure/station effects and impacts associated with blocking views of identified visual resources (e.g., local scenic resources, mountain/foothill views)
- Infrastructure/station effects and impacts associated with change in visual character (e.g., removal of structures or landscaping)
- Infrastructure/station effects and impacts associated with local design criteria and guidelines
- Infrastructure/station effects and impacts associated with local lighting design criteria and guidelines

Criteria to determine the type of site-specific mitigation for visual resources would be developed by the identified lead agency or agencies in consultation with local jurisdictions during the Tier 2/Project-level environmental process.

Mitigation Strategy VIS-2: To address potential lighting impacts related to nighttime construction lighting, the contractor shall use construction lighting during nighttime that is limited to the minimum necessary for safety and security, and the use of downward facing, cut-off fixtures that do not allow spillover onto adjacent land uses. A construction lighting plan shall be developed for each station facility, taking into account local and regional lighting policies, including but not limited to, the Mount Palomar Nighttime Lighting Policy.

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3.5 Air Quality and Greenhouse Gases

3.5.1 Introduction

This section provides an evaluation of air quality, health risk, GHGs, and global climate change-related effects associated with implementing the No Build Alternative and Build Alternative Options. Information contained in this section is summarized from the *Air Quality and Greenhouse Gas Technical Memorandum* (Appendix E of this Tier 1/Program EIS/EIR).

3.5.2 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 sensitive receptors within the Tier 1/Program EIS/EIR Study Area and evaluated the potential air quality, health risk, GHGs, and global climate change-related impacts that could occur from implementation of the Build Alternative Options.

Federal

The Federal Clean Air Act (FCAA), as amended, is the primary federal law that governs air quality, while the California Clean Air Act (CCAA) is its companion state law. These laws and related regulations by the U.S. Environmental Protection Agency (EPA) and California Air Resources Board (ARB) set standards for the concentration of air pollutants.

United States Environmental Protection Agency General Conformity Rule

The U.S. EPA General Conformity Rule (40 CFR 93 Subpart B) applies to federal actions, other than those related to highway and transit planning, that result in emissions of non-attainment or maintenance pollutants, or their precursors, in federally designated non-attainment or maintenance areas. The U.S. EPA General Conformity Rule establishes a process to demonstrate that federal actions would be consistent with applicable state implementation plans and would not cause or contribute to new violations of the National Ambient Air Quality Standards (NAAQS), increase the frequency or severity of existing violations of the NAAQS, or delay the timely attainment of the NAAQS.

Federal Clean Air Act

The FCAA, enacted in 1963, established federal air quality standards, known as NAAQS, and defines non-attainment areas as geographic regions designated as not meeting one or more of the NAAQS. Attainment areas are areas with concentrations of criteria pollutants that are below the levels established by the NAAQS. The FCAA also requires that a state implementation plan be prepared for local areas not meeting these standards (non-attainment area) and a maintenance plan be prepared for each former non-attainment area that subsequently demonstrated compliance with the standards.

NAAQS have been established for transportation-related criteria pollutants that are linked to potential health concerns: carbon monoxide (CO); nitrogen dioxide (NO₂); ozone (O₃); particulate matter 10 microns or less (PM₁₀); particulate matter 2.5 microns or less (PM_{2.5}); sulfur dioxide (SO₂); and lead (Pb). The FCAA requires U.S. EPA to designate areas as attainment, non-attainment, or maintenance for each criteria pollutant based on whether the NAAQS have been achieved.

Greenhouse Gas Reporting Program

On September 22, 2009, U.S. EPA published the final rule that requires mandatory reporting of GHG emissions from large sources in the U.S. The gases covered by the final rule are carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and other fluorinated gases, including nitrogen trifluoride and hydrofluorinated ethers. Currently, this is not a transportation-related regulation and, therefore, the final rule does not apply to the Tier 1/Program EIS/EIR. However, the methodology developed as part of this regulation is helpful in identifying potential GHG emissions.

On December 7, 2009, the *Final Endangerment and Cause or Contribute Findings for Greenhouse Gases*, under Section 202(a) of the FCAA, was signed by the U.S. EPA administrator. The endangerment finding states that current and projected concentrations of the seven final rule GHGs in the atmosphere threaten public health and welfare. Furthermore, combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution.

On April 5, 2017, CEQ withdrew its *Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews*. As such, California's laws and CEQA considerations were used to satisfy the NEPA considerations for GHGs.

State

California Clean Air Act

The CCAA designates air districts as lead air quality planning agencies, requires air districts to prepare air quality plans, and grants air districts explicit authority to implement transportation control measures and regulate indirect sources of air pollution. The CCAA focuses on attainment of the California Ambient Air Quality Standards (CAAQS), which for certain pollutants and averaging periods are more stringent than the comparable federal standards. The following are criteria pollutants, which the California ARB and U.S. EPA regulate: CO, NO₂, SO₂, O₃, PM₁₀, PM_{2.5}, and Pb. CAAQS are generally more stringent than the NAAQS and incorporate additional standards for sulfates, hydrogen sulfide, and vinyl chloride, and visibility-reducing particles. Additional information on CAAQS and NAAQS is provided in the *Air Quality and Greenhouse Gas Technical Memorandum* (Appendix E of this Tier 1/Program EIS/EIR).

Assembly Bill 1493

Assembly Bill (AB) 1493, enacted in 2002, requires the California ARB to develop and implement regulations to reduce automobile and light-truck GHG emissions.

Assembly Bill 32

AB 32, known as the Global Warming Solutions Act of 2006 and enacted in 2006, requires the state to reduce GHG emissions to 1990 levels by 2020, mandating the California ARB create a plan that includes market mechanisms and implement rules to achieve “real, quantifiable, cost-effective reductions of GHGs.” The required scoping plan includes the implementation of the high-speed rail system as a GHG reduction measure, estimating a 2020 reduction of 1 million metric tons of carbon dioxide equivalent.

Executive Order S-3-05

Executive Order (EO) S-3-05, enacted in 2005, establishes targets to reduce California’s GHG emissions to 2000 levels by 2010, 1990 levels by 2020, and 80 percent below the 1990 levels by 2050.

Governor’s Executive Order S-01-07

Under EO S-01-07, enacted in 2007, the carbon intensity of California’s transportation fuels is to be reduced by at least 10 percent by 2020.

Governor's Executive Order S-13-08

EO S-13-08, enacted in 2008, addresses the risk of sea level rise resulting from global climate change. It requires all state agencies that are planning construction projects in the areas vulnerable to sea level rise consider a range of sea level rise scenarios to assess project vulnerability and, to the extent feasible, reduce expected risks, and increase resiliency to sea level rise.

Governor's Executive Order B-30-15

EO B-30-15, enacted in 2015, established a California GHG reduction target of 40 percent below 1990 levels by 2030. This is intended to make it possible to reach the state's goal of reducing emissions 80 percent under 1990 levels by 2050.

Senate Bill 375

SB 375, known as the Sustainable Communities and Climate Protection Act of 2008, requires the California ARB to develop regional reduction targets for GHG emissions and prompts the creation of regional land use and transportation plans to reduce emissions from passenger vehicle use throughout the state. The law was enacted in 2008 and became effective on January 1, 2009. The targets apply to the regions in the state covered by California's 18 MPOs. The 18 MPOs have been tasked with creating the regional land use and transportation plans called SCSs. The MPOs are required to develop the SCSs through integrated land use and transportation planning and demonstrate an ability to attain the proposed reduction targets by 2020 and 2035.

Senate Bill 32

SB 32, which was signed into law on September 8, 2016, expands upon AB 32 to reduce GHG emissions and mandates the reduction target in GHG emissions as written into EO B-30-15.

Regional

Southern California Association of Governments

Through the FCAA amendments, California's 18 MPOs are responsible for the planning, programming, and coordination of federal highway and transit investments in urbanized areas. As part of this work, MPOs help to ensure that the transportation and air quality plans of the region are consistent with goals established in the state implementation plans. The MPO responsible for air quality within the Tier 1/Program EIS/EIR Study Area is the SCAG. The SCAG region encompasses 6 counties (Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura) and 191 cities in an area covering more than 38,000 square miles. On April 7, 2016, SCAG's Regional Council adopted the 2016-2040 RTP/SCS. The RTP/SCS is a long-range visioning plan that balances future

mobility and housing needs with economic, environmental, and public health goals. The RTP/SCS charts a course for closely integrating land use and transportation, so that the region can grow smartly and sustainably.

South Coast Air Quality Management District Regulations

The South Coast Air Quality Management District (SCAQMD) has jurisdiction over the South Coast Air Basin (SCAB) and the Salton Sea Air Basin (SSAB), of which the Program is located within. To ensure continued progress toward clean air and comply with state and federal requirements, the SCAQMD, in conjunction with the California ARB, SCAG, and U.S. EPA, generally updates its air quality management plans every 3 years. The 2016 Air Quality Management Plan was adopted by the SCAQMD Governing Board on March 3, 2017 (SCAQMD 2016). The SCAQMD implements the following rules:

- SCAQMD Rule 402 – Nuisance: This rule prohibits discharge or air contaminants or other materials that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or the public; endanger the comfort, repose, health, or safety of any such persons or the public; or cause, or have a natural tendency to cause injury or damage to businesses or property.
- SCAQMD Rule 403 – Fugitive Dust: This rule prohibits emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area that remains visible beyond the emission source property line. Additional requirements apply to construction projects on property with 50 or more acres of disturbed surface area, or for any earth-moving operation with a daily earth-moving or throughput volume of 5,000 cubic yards or more three times during the most recent 365-day period. These requirements include submittal of a dust control plan, maintaining dust control records, and designating a SCAQMD-certified dust control supervisor.
- SCAQMD Rule 1108 – Cutback Asphalt: This rule prohibits the sale or use of any cutback asphalt containing more than 0.5 percent by volume organic compounds which evaporate at 260°C (500°F) or lower within the SCAQMD.
- SCAQMD Rule 1113 – Architectural Coatings: This rule is intended to limit the volatile organic compounds (VOC) content of architectural coatings used in the SCAQMD.

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.

3.5.3 Methods for Evaluating Environmental Effects

The methodology for this Tier 1/Program service-level evaluation identifies existing conditions for air quality and GHGs and provides the approach and assumptions for analyzing air quality and GHG environmental consequences associated with implementation of the Build Alternative Options. The methodology considers the change in travel conditions for the proposed transportation improvements by comparing the Build Alternative Options with the No Build Alternative during the identified horizon years.

Given that the details of the needed rail infrastructure and station locations are unknown at this time, direct and indirect effects on air quality and GHG emissions were evaluated qualitatively for the following: 1) evaluation of construction-related emissions; 2) identification and evaluation of operation-related emissions sources; 3) evaluation of GHG emissions; and 4) discussions of likely Tier 2/Project-level analyses. Quantitative emissions estimates were provided for locomotive and VMT emissions reductions during operation of the Build Alternative Options.

Horizon Years

For the purpose of comparison between the No Build Alternative and Build Alternative Options, three horizon years were analyzed:

- Existing Year (2018): Under this scenario, Program-related transportation impacts were analyzed for the surrounding roadways and rail (passenger and freight) systems under existing conditions. This scenario was analyzed to fulfill CEQA requirements for establishing a baseline environmental setting.
- Opening Year (2024): Under this scenario, Program-related transportation impacts were analyzed for the surrounding roadways and rail (passenger and freight) systems on the first day the Program is operational.
- Future Year (2044): Under this scenario, Program-related transportation impacts were analyzed for the surrounding roadways and rail (passenger and freight) systems under full build-out conditions.

Air Quality Assumptions

Potential regional air quality effects from the Program were evaluated based on a comparison of their effects on overall air quality emissions. In addition, the effect of these changes on maintenance and non-attainment areas, as classified by U.S. EPA at the time of analysis, is discussed.

To examine the Program’s potential effects on local air quality, a quantitative analysis was conducted based on potential changes in VMT as a result of estimated changes in local traffic at stations, changes in rail service, and location of parking facilities. Regional VMT estimates and EMFAC2017 emissions factors were used to estimate criteria pollutant emissions for the Build Alternative Options and No Build Alternative. Locomotive emissions were estimated using rail miles traveled estimates and U.S. EPA locomotive emissions factors. Potential local health risks associated with construction and locomotive diesel particulate matter emissions were evaluated qualitatively.

The emissions thresholds that trigger requirements of the General Conformity Rule for federal actions emitting criteria pollutants in non-attainment or maintenance areas, or their precursors, are called *de minimis* levels. If a project’s emissions are projected to be below the *de minimis* levels, then the FCAA assumes the project would not result in any substantial air quality effects, and no further analysis would be required.

Conversely, if the Build Alternative Options emissions exceed *de minimis* levels, then the Project would require an air quality conformity determination relative to the NAAQS. Site-specific information is required to assess the need for a conformity determination. This information would be available in a Tier 2/Project-level analysis.

This Tier 1/Program-level analysis was prepared by comparing the net increase in air quality criteria pollutant emissions estimated to occur under the No Build Alternative and Build Alternative Options against the General Conformity *de minimis* levels shown in Table 3.5-1. Because the Program would be located partially in the SCAB and partially in the SSAB, net criteria pollutant emissions occurring in each air basin would be compared with applicable *de minimis* levels (i.e., emissions occurring within the SCAB would be compared with SCAB *de minimis* levels).

Table 3.5-1. General Conformity *De Minimis* Thresholds

Criteria Pollutant	SCAB (tons per year)	SSAB (tons per year)
O ₃	10	25
CO	100	100
PM ₁₀	100	100
PM _{2.5}	100	100
Pb	25	25

Source: U.S. EPA 2018b

Notes:

CO=carbon monoxide; O₃=ozone; Pb=lead; PM_{2.5}=particulate matter 2.5 microns or less; PM₁₀=particulate matter 10 microns or less; SCAB=South Coast Air Basin; SSAB=Salton Sea Air Basin

Greenhouse Gas Emission Assumptions

GHG emissions were evaluated on a statewide level, as emissions released as a result of implementing the Build Alternative Options would not be localized or regional due to their rapid dispersion into the global atmosphere. For the GHG emissions evaluation, passenger VMT and locomotive operations were evaluated as the main source of energy consumption under the Build Alternative Options. Regional VMT estimates and EMFAC2017 emissions factors were used to estimate GHG emissions for the No Build Alternative and Build Alternative Options. Locomotive emissions were estimated using rail miles traveled estimates and U.S. EPA locomotive emissions factors.

Tier 1/Program EIS/EIR Study Area

The Tier 1/Program EIS/EIR Study Area for air quality includes the affected air basins: SCAB for the Western Section and the Eastern Section west of Cabazon and the SSAB for the Eastern Section east of Cabazon. The Tier 1/Program EIS/EIR Study Area for GHGs includes the state of California.

Data Sources

The data sources used to establish the existing conditions include information from the California ARB, U.S. EPA, and air quality management districts. Existing ambient air quality and GHG emissions data from the California ARB and U.S. EPA were collected and summarized. The current status of MPO-administered areas within the Program Corridor were described with regard to ambient air quality standards and the final conformity rule. GHG emissions were compiled from the California ARB for the affected environment. The California ARB GHG emissions information is available on a statewide basis.

Related Resources

This evaluation incorporates data and evaluation from related resources to contribute to the air quality and GHG assessment, as applicable. These related resources are identified in Table 3.5-2.

Table 3.5-2. Related Resource Inputs for Air Quality and Greenhouse Gas Assessment

Resource	Input for Air Quality and GHG Assessment
Transportation (Section 3.3)	Potential changes in VMT were identified, including those resulting from local traffic, as an input to air quality and GHG emissions.
Public Utilities and Energy (Section 3.12)	Net changes in energy consumption within the affected environment as a result of the Build Alternative Options and the potential effects on regional air quality would be evaluated during Tier 2/Project-level analysis when specific Project details are available.

Notes:

GHG=greenhouse gas; VMT=vehicle miles traveled

3.5.4 Affected Environment

Air Quality

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. As shown on Figure 3.5-1, the entire Western Section and a portion of the Eastern Section (west of Cabazon) of Program Corridor is located within the SCAB. The Eastern Section (east of Cabazon) of the Program Corridor is located within the SSAB.

Build Alternative Option 1 (Coachella Terminus)

Table 3.5-3 summarizes the federal (under NAAQS) and state (under CAAQS) attainment status for the SCAB and SSAB. The two air basins are in federal and state non-attainment status for several of the air quality criteria pollutants.

Table 3.5-3. Federal and State Attainment Status of the South Coast Air Basin and Salton Sea Air Basin

Pollutant	Federal Attainment Status: SCAB	State Attainment Status: SCAB	Federal Attainment Status: SSAB	State Attainment Status: SSAB
O ₃ (1-hour standard)	—	Non-attainment	—	Non-attainment
O ₃ (8-hour standard)	Non-attainment/ Extreme	Non-attainment	Non-attainment/ Severe 15	Non-attainment
PM ₁₀	Attainment/ Maintenance	Non-attainment	Non-attainment/ Serious	Non-attainment

Pollutant	Federal Attainment Status: SCAB	State Attainment Status: SCAB	Federal Attainment Status: SSAB	State Attainment Status: SSAB
PM _{2.5}	Non-attainment/ Moderate	Non-attainment	Attainment/ Unclassifiable	Attainment
CO	Attainment/ Maintenance	Attainment	Attainment/ Unclassifiable	Attainment
NO ₂ (1-hour standard)	Attainment/ Unclassifiable	Attainment	Attainment/ Unclassifiable	Attainment
NO ₂ (annual standard)	Attainment/ Maintenance	Attainment	Attainment/ Unclassifiable	Attainment
SO ₂	Attainment/ Unclassifiable	Attainment	Attainment/ Unclassifiable	Attainment
Pb	Non-attainment (partial Los Angeles County only)/Attainment (rest of the SCAB)	Attainment	Attainment/ Unclassifiable	Attainment
All others	—	Attainment	—	Attainment/ Unclassifiable

Source: California ARB 2018; U.S. EPA 2018a

Notes:

CO=carbon monoxide; NO₂=nitrogen dioxide; O₃=ozone; Pb=lead; PM_{2.5}=particulate matter 2.5 microns or less; PM₁₀=particulate matter 10 microns or less; SCAB=South Coast Air Basin; SO₂=sulfur dioxide; SSAB=Salton Sea Air Basin

Emissions of PM_{2.5} and nitrogen oxide (NO_x) from diesel locomotive engines currently contribute to the non-attainment of the NAAQS for PM_{2.5} and O₃. U.S. EPA has established emission standards for these pollutants for newly manufactured and remanufactured locomotives (73 FR 25098, Locomotive and Commercial Marine Rule). U.S. EPA is projecting that PM_{2.5} and NO_x emissions will drop as a result of these standards.

Rail service can also contribute to visibility concerns in non-attainment and maintenance areas through primary and secondary PM_{2.5}, SO₂, and NO_x diesel emissions. Under the provisions of the FCAA, U.S. EPA has designated a number of areas in California, including national parks and wilderness areas, as Mandatory Class I Federal Areas, where visibility is an important value. Under the U.S. EPA Regional Haze Rule, states must establish goals to improve visibility in Mandatory

Class I Federal Areas and develop long-term strategies to reduce emissions of air pollutants that cause visibility impairment. Of the Mandatory Class I Federal Areas in the region, the San Jacinto Wilderness and San Gorgonio Wilderness are located nearest to the Tier 1/Program EIS/EIR Study Area; however, no Mandatory Class I Federal Areas are located within the Tier 1/Program EIS/EIR Study Area (U.S. EPA 2019).

Build Alternative Option 2 (Indio Terminus)

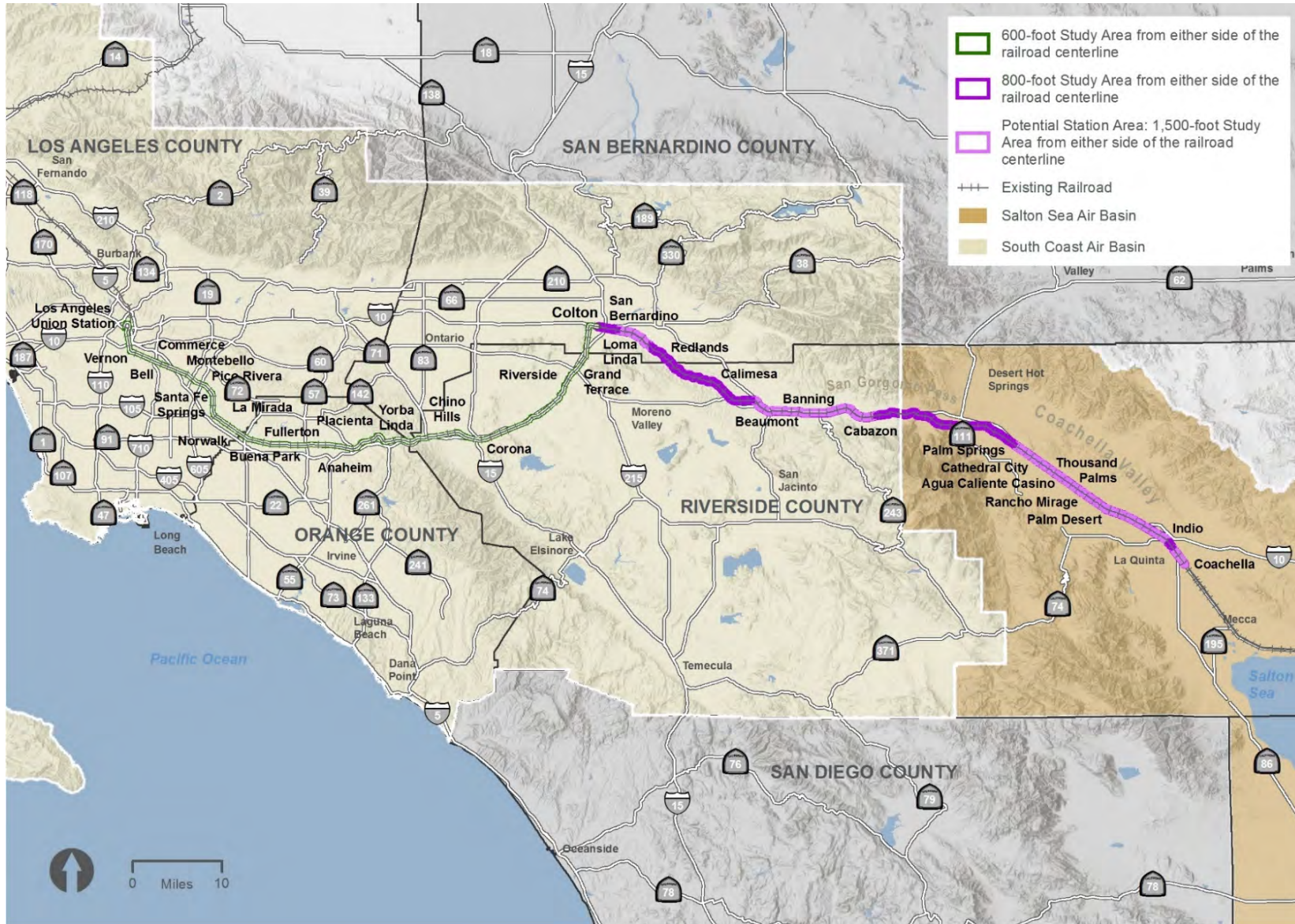
Existing air quality data and information within Build Alternative Option 2 is the same as Build Alternative Option 1.

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

Existing air quality data and information within Build Alternative Option 3 is the same as Build Alternative Option 1.

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Figure 3.5-1. Air Basins Traversed by the Program Corridor



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Greenhouse Gas Emissions

Build Alternative Option 1 (Coachella Terminus)

GHGs are inventoried on a statewide basis because their effects are not localized or regional. A summary of the 2018 statewide GHG emissions inventory is provided in Table 3.5-4. Transportation is the largest contributor of GHGs in California, accounting for 39.8 percent of the total statewide GHG emissions. Contributions from the transportation sector include emissions from on-road and off-road vehicles, aviation, rail, and water-borne vehicles, as well as a few other smaller sources.

Table 3.5-4. California Greenhouse Gas Inventory

GHG Emission Category	2018 Emissions (million metric tons carbon dioxide equivalent)	Percentage of Total (%)
Transportation	169.5	38.8
Electric power	63.1	14.4
Commercial and residential	41.4	9.5
Industrial	89.2	20.4
Agriculture and forestry	32.6	7.5
High global warming potential gases	20.5	4.7
Recycling and waste	20.5	4.7
Total California emissions	436.8	100.0

Source: California ARB 2020

Notes:

GHG=greenhouse gas

Build Alternative Option 2 (Indio Terminus)

Existing GHG data and information within Build Alternative Option 2 is the same as Build Alternative Option 1.

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

Existing GHG data and information within Build Alternative Option 3 is the same as Build Alternative Option 1.

3.5.5 Environmental Consequences

Overview

Effects as a result of implementing the Build Alternative Options can be broadly classified into construction and operational effects. Both short-term or temporary effects and long-term or permanent air quality and GHG-related effects would be anticipated as a result of constructing any of the Build Alternative Options.

Construction effects on air quality are generally short term and are due to the emissions from construction equipment; fugitive dust from ground-level disturbances; on-site materials processing and handling, such as concrete plants; and vehicle emissions from increases in local traffic congestion. The potential construction effects on air quality are evaluated based on the intensity of the construction activities and construction duration of the Program. The longer the construction period and the more non-road construction equipment used (such as cranes, bulldozers, heavy duty trucks, and concrete batch plants), the greater the potential for construction effects on air quality.

Effects could also result from operation of any of the Build Alternative Options, as the addition of two daily round trips would result in the increased consumption of fossil fuels and resultant release of emissions. However, while implementation of any of the Build Alternative Options would increase emissions from locomotives, those emissions would be partially offset by automobile emissions reduction that would occur due to the travel mode shift from automobile to rail transport within the Program Corridor. Any of the Build Alternative Options would be largely beneficial to air quality in the region and anticipated to contribute to the region's long-term attainment of air quality goals by reducing VMT and vehicle emissions.

Site-specific sensitive land uses potentially affected by the Program would be further identified as part of the Tier 2/Project-level environmental review process. Specific types and degrees of impacts on sensitive receptors would not be known until further design and construction information is known.

No Build Alternative

The No Build Alternative, as described in Chapter 2, Program Alternatives, of this Tier 1/Program EIS/EIR, is used as the baseline for comparison. The No Build Alternative would not implement the Program associated with this service-level evaluation. Existing air quality, compared with future air quality without the Program, would be affected by two key factors: regional growth and air quality and GHG regulatory actions. Regional growth, such as increased residential development and density, along with additional industry, results in more and greater sources of air and GHG emissions. These increases in air emissions are offset by transportation projects, which generally

reduce traffic congestion, thus minimizing local effects for emission hot spots, as well as vehicle regulatory programs that control the level of emissions from on-road and non-road vehicles.

While regional program efforts and changes in transportation technology (e.g., use of electrified and Tier IV equipment) would reduce future pollutant burdens for air quality criteria pollutants such as VOC, CO, NO_x, PM_{2.5}, and PM₁₀, and GHG emissions within the Program Corridor, several existing and committed transportation projects would occur in the Program Corridor under the No Build Alternative. These future projects would result in an increase in passenger and freight services resulting in more and greater sources of air quality and GHG emissions within the Program Corridor under the No Build Alternative.

As summarized in Table 3.5-5, projected future growth in the Program Corridor would result in a corresponding increase in traffic and VMT, as more cars would be on the roadways. Therefore, traffic congestion is likely to worsen with the No Build Alternative, resulting in air quality effects. With the continued trend in increases of VMT within the Program Corridor, energy consumption and GHG emissions would likely increase under the No Build Alternative. This assessment does not, however, consider other influences, including changes in Corporate Average Fuel Economy, standards, bus and aircraft efficiency, fuel compositions, and other factors.

Table 3.5-5. Annual Vehicle Miles Traveled Estimates (No Build Alternative)

Horizon Year	VMT Estimate
Existing Year (2018)	3,195,227,280
Opening Year (2024)	3,475,105,216
Future Year (2044)	4,335,611,649

Notes:

VMT=vehicle miles traveled

Build Alternative Options 1, 2, and 3

Air Quality Effects

CONSTRUCTION

Western Section. The Build Alternative Options would not require construction of additional rail or station infrastructure in the Western Section because the existing railroad infrastructure and stations from LAUS to Colton would be used. When compared with the No Build Alternative, short-term/temporary air quality effects would be negligible because no additional construction activities are planned within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Construction activities required for infrastructure improvements (such as sidings, additional main line track, wayside signals, drainage, grade-separation structures) and station facilities would result in short-term increases in dust and equipment-related emissions in and around the construction site. Exhaust emissions during construction would be generated by fuel combustion in motor vehicles and construction equipment, and particulate emissions would result from soil disturbance, earthwork, and other construction activities. Construction vehicle activity and disruption of normal traffic flow may also result in increased motor vehicle emissions within the construction area.

The air quality emissions that could be generated would vary depending on the length of the construction period, specific construction activity (e.g., grading, paving, pile driving), types of equipment, and number of personnel.

Construction of any of the Build Alternative Options would have the potential to cause temporary air quality effects. In general, the degree of adverse construction effects is proportional to the length of new rail proposed to be constructed, number of grade separations, number and size of new facilities, relationship of the improvements and facilities to populated areas, and the duration of construction at each site.

Potential air quality impacts from each construction project would be short term, occurring at a location only while construction work is in progress. Construction activities would be required to comply with applicable local, state, and federal regulations, in addition to the implementation of identified best management practices (BMP), to minimize emissions and construction effects.

Design specifics and locations of the rail infrastructure improvements and station facilities are not known at this time, so the air quality emissions that could be generated and potential sensitive receptors that could be affected 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 air quality emissions during construction would be conducted and impacts on sensitive receptors would be evaluated during the Tier 2/Project-level analysis.

Although construction of site-specific rail infrastructure and station facilities would be subject to applicable regulations and BMPs, when compared with the No Build Alternative, short-term localized construction air quality effects could be substantial within the Program Corridor under Build Alternative Option 1 if the implementation of BMPs would not bring construction emissions to below identified SCAQMD construction emission thresholds. The Tier 2/Project-level analysis would also evaluate mobile source air toxics emissions to assess construction period effects and SCAQMD regional and local daily significance thresholds. 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 for Build Alternative Option 2 and would be considered substantial 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 rail track infrastructure. However, the magnitude of effects would be similar for Build Alternative Option 3 and would be considered substantial when compared with the No Build Alternative.

OPERATION

Western and Eastern Section. During operation, 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. Operational activities are anticipated to be limited to maintenance of culverts, bridges, embankments, and station areas. Operation of any of the Build Alternative Options would generally result in a long-term net benefit to air quality by reducing emissions of criteria pollutants, air toxics, and GHG. There are several factors that would contribute to the extent to which the operation any of the Build Alternative Options have a long-term effect on air quality. These include the operation of the stations and other supporting facilities, the forecast ridership of the rail system, and the subsequent vehicle and airplane emission change due to the shift of travel mode.

Build Alternative Options with higher ridership would have the potential to shift more passengers from driving to riding the trains, thus decreasing the regional VMT and associated vehicle emissions. In addition, longer route segments would provide access to more locations and would likely have a greater reduction in regional VMT.

The estimated annual railroad emissions for operation of the Build Alternative Options for the horizon years are provided in Table 3.5-6 and Table 3.5-7. These estimates do not consider future emission reductions associated with new emission standards or changes in transportation technology (e.g., U.S. EPA Tier IV equipment). As summarized in Table 3.5-6 and Table 3.5-7, the estimated Build Alternative Options locomotive emissions would not exceed General Conformity *de minimis* levels in the SCAB or SSAB.

Table 3.5-6. Locomotive Emission Estimates (Build Alternative Option 1)

Air Basin	NO _x (tons per year)	VOC (tons per year)	PM ₁₀ (tons per year)	PM _{2.5} (tons per year)	CO (tons per year)
Estimated Rail Emissions					
SCAB	5.0166	0.2007	0.0008	0.0007	6.4213
SSAB	1.7984	0.0719	0.0003	0.0003	2.3020
Total	6.8150	0.2726	0.0011	0.0010	8.7233
General Conformity De Minimis Level					
SCAB	10	10	100	100	100
SSAB	25	25	100	100	100

Source: Appendix E of this Tier 1/Program EIS/EIR

Notes:

CO=carbon monoxide; NO_x=nitrogen oxide; PM_{2.5}=particulate matter 2.5 microns or less; PM₁₀=particulate matter 10 microns or less; SCAB=South Coast Air Basin; SSAB=Salton Sea Air Basin; VOC=volatile organic compound

Table 3.5-7. Locomotive Emission Estimates (Build Alternative Options 2 and 3)

Air Basin	NO _x (tons per year)	VOC (tons per year)	PM ₁₀ (tons per year)	PM _{2.5} (tons per year)	CO (tons per year)
Estimated Rail Emissions					
SCAB	4.9279	0.1971	0.0007	0.0007	6.3077
SSAB	1.7097	0.0684	0.0003	0.0003	2.1884
Total	6.6376	0.2655	0.0010	0.0010	8.4961
General Conformity De Minimis Level					
SCAB	10	10	100	100	100
SSAB	25	25	100	100	100

Source: Appendix E of this Tier 1/Program EIS/EIR

Notes:

CO=carbon monoxide; NO_x=nitrogen oxide; PM_{2.5}=particulate matter 2.5 microns or less; PM₁₀=particulate matter 10 microns or less; SCAB=South Coast Air Basin; SSAB=Salton Sea Air Basin; VOC=volatile organic compound

While operation of the Build Alternative Options would increase emissions from locomotives, those emissions would be offset by automobile emissions reduction that would occur due to the travel mode shift from automobile to rail transport within the travel corridor. A projection of ridership and VMT reductions is provided in Table 3.5-8 and Table 3.5-9 for the Build Alternative Options.

Table 3.5-8. Annual Ridership and Annual Vehicle Miles Traveled by Horizon Year (Build Alternative Option 1)

Alternative Scenarios	Annual Ridership (one-way trips)	VMT (million)
Existing Year (2018)^a		
2018 baseline/existing conditions	—	3,200.0
Opening Year (2024)		
No Build Alternative	—	3,500.0
Build Alternative Option 1	204,107	3,489.5
Change in VMTs from No Build Alternative	—	10.5
Future Year (2044)		
No Build Alternative	—	4,300.0
Build Alternative Option 1	338,540	4,282.6
Change in VMTs from No Build Alternative	—	17.4

Source: Appendix C of this Tier 1/Program EIS/EIR

Notes:

^a Existing Year (2018) assumes no reductions from emissions, as the Program would not be in operation.

VMT=vehicle miles traveled

Table 3.5-9. Annual Ridership and Annual Vehicle Miles Traveled by Horizon Year (Build Alternative Options 2 and 3)

Alternative Scenarios	Annual Ridership (one-way trips)	VMT (million)
Existing Year (2018)^a		
2018 baseline/existing conditions	—	3,200.0
Opening Year (2024)		
No Build Alternative	—	3,500.0

Alternative Scenarios	Annual Ridership (one-way trips)	VMT (million)
Build Alternatives Options 2 and 3	188,290	3,490.3
Change in VMTs from No Build Alternative	—	9.7
Future Year (2044)		
No Build Alternative	—	4,300.0
Build Alternative Options 2 and 3	312,306	4,283.9
Change in VMTs from No Build Alternative	—	16.1

Source: Appendix C of this Tier 1/Program EIS/EIR

Notes:

^a Existing Year (2018) assumes no reductions from emissions, as the Program would not be in operation.

VMT=vehicle miles traveled

Operation of the Build Alternative Options would be largely beneficial to air quality in the region and anticipated to contribute to the region's long-term attainment of air quality goals by reducing VMT and vehicle emissions. A conservative estimate of regional air quality criteria pollutants and the corresponding reductions related to the VMT reduction estimates is provided in Table 3.5-10 and Table 3.5-11 for the Build Alternative Options. The VMT emissions reduction estimates provided in Table 3.5-10 and Table 3.5-11 would be partially offset by locomotive and station operations emissions.

Table 3.5-10. Regional Air Quality Criteria Pollutant Estimates by Horizon Year (Build Alternative Option 1)

Alternative Scenarios	VOC (tons per year)	NO _x (tons per year)	CO (tons per year)	SO _x (tons per year)	PM ₁₀ (tons per year)	PM _{2.5} (tons per year)
Existing Year (2018)^a						
2018 baseline/existing emissions	96.3	349.3	4,282.4	11.2	164.8	69.1
Opening Year (2024)						
No Build Alternative	40.9	163.0	2,637.7	10.1	177.5	73.5
Build Alternative Option 1	40.7	162.0	2,621.8	10.0	176.4	73.1
Change in emissions from No Build Alternative	-0.2	-1.0	-15.9	-0.1	-1.1	-0.4

Alternative Scenarios	VOC (tons per year)	NO _x (tons per year)	CO (tons per year)	SO _x (tons per year)	PM ₁₀ (tons per year)	PM _{2.5} (tons per year)
Future Year (2044)						
No Build Alternative	10.1	79.4	1,918.8	9.4	216.7	87.4
Build Alternative Option 1	10.0	78.8	1,903.4	9.3	215.0	86.7
Change in emissions from No Build Alternative	-0.1	-0.6	-15.4	-0.1	-1.7	-0.7

Source: Appendix E of this Tier 1/Program EIS/EIR

Notes:

^a Existing Year (2018) assumes no reductions from emissions, as the Program would not be in operation.

CO=carbon monoxide; NO_x=nitrogen oxide; PM_{2.5}=particulate matter 2.5 microns or less; PM₁₀=particulate matter 10 microns or less; SO_x=sulfur oxide; VOC=volatile organic compounds

Table 3.5-11. Regional Air Quality Criteria Pollutant Estimates by Horizon Year (Build Alternative Options 2 and 3)

Alternative Scenarios	VOC (tons per year)	NO _x (tons per year)	CO (tons per year)	SO _x (tons per year)	PM ₁₀ (tons per year)	PM _{2.5} (tons per year)
Existing Year (2018)^a						
2018 baseline/existing emissions	96.3	349.3	4,282.4	11.2	164.8	69.1
Opening Year (2024)						
No Build Alternative	40.9	163.0	2,637.7	10.1	177.5	73.5
Build Alternatives Options 2 and 3	40.7	162.1	2,623.0	10.0	176.5	73.1
Change in emissions from No Build Alternative	-0.2	-0.9	-14.7	-0.1	-1.0	-0.4

Alternative Scenarios	VOC (tons per year)	NO _x (tons per year)	CO (tons per year)	SO _x (tons per year)	PM ₁₀ (tons per year)	PM _{2.5} (tons per year)
Future Year (2044)						
No Build Alternative	10.1	79.4	1,918.8	9.4	216.7	87.4
Build Alternative Options 2 and 3	10.0	78.8	1,904.6	9.3	215.1	86.8
Change in emissions from No Build Alternative	-0.1	-0.6	-14.2	-0.1	-1.6	-0.6

Source: Appendix E of this Tier 1/Program EIS/EIR

Notes:

^a Existing Year (2018) assumes no reductions from emissions, as the Program would not be in operation.

CO=carbon monoxide; NO_x=nitrogen oxide; PM_{2.5}=particulate matter 2.5 microns or less; PM₁₀=particulate matter 10 microns or less; SO_x=sulfur oxide; VOC=volatile organic compounds

Localized activities, including locomotive idling and vehicular queuing in and around commuter parking lots, have the potential to result in air quality effects. Locations adjacent to station-related commuter parking lots could potentially experience increases in localized air quality pollutant concentrations, as additional traffic could be concentrated in these areas in addition to increased train idling at the station. The generation of localized CO, PM_{2.5}, and PM₁₀ emissions tend to occur at locations with a large number of vehicles idling, such as at congested intersections. Implementation of the Program under any of the Build Alternative Options could result in beneficial localized air quality effects through relieving traffic congestion in a local area.

Implementation of the Program could add new at-grade rail crossings that would increase localized vehicle emissions at those locations, other rail infrastructure improvements, such as grade-separated crossings, could also be implemented, which could also relieve traffic congestion at the local level.

Localized air quality emissions from Program operation would have the potential to expose nearby population to air pollutants such as diesel particulate matter. Potential localized air quality emissions associated with Program operation would be mostly from diesel locomotives idling. However, localized air quality emissions from diesel train travel are expected to be limited due to the low number of diesel locomotives that would idle at particular locations. Localized air quality effects would be higher in urban or populated areas due to the exposure of sensitive receptors. Facilities located mostly in suburban or rural areas, such as those in the Eastern Section, would likely have

lower potential to cause localized air quality emission exposure than facilities in the Western Section, where there are more densely populated areas.

Similar to construction activities, operational activities would be subject to applicable local, state, and federal regulations, and operational BMPs would be implemented to minimize emissions and operational effects. Although operation of site-specific rail infrastructure and station facilities would be subject to applicable regulations and BMPs, when compared with the No Build Alternative, localized operational air quality effects could be substantial within the Program Corridor under Build Alternative Option 1 if the implementation of BMPs would not bring operational emissions to below identified localized SCAQMD operational emission thresholds. The Tier 2/Project-level analysis would also evaluate mobile source air toxics emissions to assess operational effects and SCAQMD regional and local daily significance thresholds. As shown in Table 3.5-10 and Table 3.5-11, when compared with Build Alternative Option 1, Build Alternative Options 2 and 3 could have nominally greater operational emissions of NO_x, sulfur oxide (SO_x), PM₁₀, and PM_{2.5}. However, the magnitude of effects would be similar for Build Alternative Option 2 and 3 and could be considered substantial when compared with the No Build Alternative.

Final conclusions of localized effects would depend on design details and information on affected locations and the corresponding traffic data that are not available as part of this Tier 1/Program service-level evaluation. Therefore, localized effects of the Program would be evaluated during Tier 2/Project-level analysis to determine air pollutant effects and quantify on-road mobile-source emissions reductions, as well as locomotive operations and train station operations area-source emissions.

Implementation of any of the Build Alternative Options would not be anticipated to have any measurable air quality effects on Mandatory Class I Federal Areas, including the San Gorgonio Wilderness and San Jacinto Wilderness. When compared with the No Build Alternative, effects on Mandatory Class I Federal Areas would be negligible under Build Alternative Option 1. When compared with Build Alternative Option 1, Build Alternative Options 2 and 3 would have the same magnitude of effect and would be considered negligible when compared with the No Build Alternative. Further site-specific analysis to assess visibility concerns, such as regional haze, would be considered during Tier 2/Project-level analysis.

According to the SCAQMD CEQA Air Quality Handbook, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. Implementation of any of the Build Alternative Options would not be anticipated to have any measurable odor effects, as the Program does not include any uses identified by SCAQMD as being associated with odor complaints. When compared with the No Build Alternative, odor effects would be negligible under

Build Alternative Option 1. When compared with Build Alternative Option 1, Build Alternative Options 2 and 3 would have the same magnitude of effect and would be considered negligible when compared with the No Build Alternative.

Greenhouse Gas Effects

CONSTRUCTION

Western Section. The Build Alternative Options would not require construction of additional rail or station infrastructure in the Western Section because the existing railroad infrastructure and stations from LAUS to Colton would be used. Therefore, no GHG emissions would be generated, as no additional construction activities are planned within the Western Section under Build Alternative Options 1, 2, and 3. When compared with the No Build Alternative, short-term/temporary GHG effects would be negligible.

Eastern Section. Construction activities required for infrastructure improvements (such as sidings, additional main line track, wayside signals, drainage, grade-separation structures) and station facilities would result in short-term increases GHG emissions in and around the construction site. GHG emissions would be generated from the use of equipment to conduct vegetation clearing, grading and excavation, and transport of materials and waste. The GHG emissions that could be generated would vary depending on the length of the construction period, specific construction activity (e.g., grading, paving, pile driving), types of equipment, and number of personnel. In some situations, construction GHG emissions associated from a project may be orders of magnitude lower than the operational emissions from the project due to construction emissions generally being short in duration compared with the project's overall lifetime. However, there are instances when projects have long construction periods (e.g., 10 years) and may result in a large amount of emissions.

The generation of GHG emissions from each construction project would be short term. Construction activities would be required to comply with applicable local, state, and federal regulations, in addition to the implementation of identified BMPs, to minimize GHG emissions and construction effects.

Design specifics and locations of the rail infrastructure improvements and station facilities are not known at this time, so the GHG emissions that could be generated 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 GHG emissions during construction would be conducted and impacts would be evaluated during the Tier 2/Project-level analysis.

Although construction of site-specific rail infrastructure and station facilities would be subject to applicable regulations and BMPs, when compared with the No Build Alternative, short-term construction GHG effects could be moderate within the Program Corridor under Build Alternative

Option 1. 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 for Build Alternative Option 2 and would be considered moderate when compared with the No Build Alternative. When compared with Build Alternative Option 1 or Build Alternative Option 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 rail track infrastructure. However, the magnitude of effects would be similar for Build Alternative Option 3 and would be considered moderate when compared with the No Build Alternative.

OPERATION

Western and Eastern Section. Implementation of any of the Build Alternative Options has the potential to provide energy savings and reduce the transportation system’s effect on climate change. Based on projected ridership and VMT reductions, passenger rail use within the Program Corridor would decrease VMT and related mobile-source emissions. Emission reductions of GHG would mainly be attributed to the reduced travel time and resulting reduced fuel usage that would occur with operation of the Build Alternative Options. Table 3.5-12 and Table 3.5-13 provide a summary of mobile-source emissions for Opening Year (2024) and Future Year (2044) for each of the Build Alternative Options.

Table 3.5-12. Greenhouse Gas Emission Estimates (Build Alternative Option 1)

Emissions	No Build Alternative (metric tons per year)	Build Alternative Option 1 (metric tons per year)
Existing Year (2018)^a		
Automobile emissions	1,033,792	1,033,792
Passenger rail emissions	—	—
Total GHG emissions	1,033,792	1,033,792
Change in GHG emissions from No Build Alternative	—	—
Opening Year (2024)		
Automobile emissions	934,560	928,913
Passenger rail emissions	—	3,017
Total GHG emissions	934,560	931,930

Emissions	No Build Alternative (metric tons per year)	Build Alternative Option 1 (metric tons per year)
Change in GHG emissions from No Build Alternative	—	-2,630
Change in GHG emissions from Existing Year (2018)	-99,232	-101,862
<i>Future Year (2044)</i>		
Automobile emissions	862,289	855,363
Passenger rail emissions	—	3,017
Total GHG emissions	862,289	858,380
Change in GHG emissions from No Build Alternative	—	-3,909
Change in GHG emissions from Existing Year (2018)	-171,503	-175,412

Source: Appendix E of this Tier 1/Program EIS/EIR

Notes:

^a Existing Year (2018) assumes no reductions from emissions, as the Program would not be in operation.

GHG=greenhouse gas

Table 3.5-13. Greenhouse Gas Emission Estimates (Build Alternative Options 2 and 3)

Emissions	No Build Alternative (metric tons per year)	Build Alternative Options 2 and 3 (metric tons per year)
<i>Existing Year (2018)^a</i>		
Automobile emissions	1,033,792	1,033,792
Passenger rail emissions	—	Not Applicable
Total GHG emissions	1,033,792	1,033,792
Change in GHG emissions from No Build Alternative	—	—
<i>Opening Year (2024)</i>		
Automobile emissions	934,560	929,352
Passenger rail emissions	—	3,017
Total GHG emissions	934,560	932,369
Change in GHG emissions from No Build Alternative	—	-2,191

Emissions	No Build Alternative (metric tons per year)	Build Alternative Options 2 and 3 (metric tons per year)
Change in GHG emissions from Existing Year (2018)	-99,232	-101,423
<i>Future Year (2044)</i>		
Automobile emissions	862,289	855,901
Passenger rail emissions	—	3,017
Total GHG emissions	862,289	858,918
Change in GHG emissions from No Build Alternative	—	-3,371
Change in GHG emissions from Existing Year (2018)	-171,503	-174,874

Source: Appendix E of this Tier 1/Program EIS/EIR

Notes:

^a Existing Year (2018) assumes no reductions from emissions, as the Program would not be in operation.

GHG=greenhouse gas

As shown in Table 3.5-12 and Table 3.5-13, when compared with the No Build Alternative, GHG effects would be beneficial within the Program Corridor under Build Alternative Option 1. When compared with Build Alternative Option 1, Build Alternative Options 2 and 3 would have slightly reduced beneficial effects due to a shorter route alignment and reduced station options. However, the magnitude of effects would be similar for Build Alternative Option 2 and 3 and would be considered beneficial when compared with the No Build Alternative. A comprehensive quantitative GHG analysis would be performed during Tier 2/Project-level analysis to determine GHG effects and quantify on-road mobile-source emissions reductions, as well as locomotive operations and train station operations area-source emissions.

3.5.6 NEPA Summary of Potential Effects

Table 3.5-14 through Table 3.5-16 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 relative magnitude of the air quality- and GHG-related effects of the Build Alternative Options when compared with the No Build Alternative. Specific mitigation measures to reduce effects would be identified during the Tier 2/Project-level environmental process.

Table 3.5-14. NEPA Summary of Effects on Air Quality Emissions

Alternative Option	Potential Intensity of Effect: Western Section	Potential Intensity of Effect: Eastern Section
No Build Alternative ^a	Construction: Negligible Operation: Substantial	Construction: Negligible Operation: Substantial
Build Alternative Option 1 (Coachella Terminus)	Construction: Negligible Operation: Beneficial (regional), substantial (localized)	Construction: Substantial Operation: Beneficial (regional), substantial (localized)
Build Alternative Option 2 (Indio Terminus)	Construction: Negligible Operation: Beneficial (regional), substantial (localized)	Construction: Substantial Operation: Beneficial (regional), substantial (localized)
Build Alternative Option 3 (Indio Terminus with Limited Third Track)	Construction: Negligible Operation: Beneficial (regional), substantial (localized)	Construction: Substantial Operation: Beneficial (regional), substantial (localized)

Notes:

- ^a The No Build Alternative, as identified, includes existing and potential expansion of roadway, passenger rail, and air travel facilities within the Tier 1/Program EIS/EIR Study Area; however, for the service-level evaluation, identifying levels of effect from potential expansion of those facilities is speculative and would be dependent on Project-level analysis.

Table 3.5-15. NEPA Summary of Effects on Regional Haze and Odors

Alternative Option	Potential Intensity of Effect: Western Section	Potential Intensity of Effect: Eastern Section
No Build Alternative ^a	Construction: Negligible Operation: Negligible	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

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

Notes:

- ^a The No Build Alternative, as identified, includes existing and potential expansion of roadway, passenger rail, and air travel facilities within the Tier 1/Program EIS/EIR Study Area; however, for the service-level evaluation, identifying levels of effect from potential expansion of those facilities is speculative and would be dependent on Project-level analysis.

Table 3.5-16. NEPA Summary of Effects on Greenhouse Gases

Alternative Option	Potential Intensity of Effect: Western Section	Potential Intensity of Effect: Eastern Section
No Build Alternative ^a	Construction: Negligible Operation: Substantial	Construction: Negligible Operation: Substantial
Build Alternative Option 1 (Coachella Terminus)	Construction: Negligible Operation: Beneficial	Construction: Moderate Operation: Beneficial
Build Alternative Option 2 (Indio Terminus)	Construction: Negligible Operation: Beneficial	Construction: Moderate Operation: Beneficial
Build Alternative Option 3 (Indio Terminus with Limited Third Track)	Construction: Negligible Operation: Beneficial	Construction: Moderate Operation: Beneficial

Notes:

- ^a The No Build Alternative, as identified, includes existing and potential expansion of roadway, passenger rail, and air travel facilities within the Tier 1/Program EIS/EIR Study Area; however, for the service-level evaluation, identifying levels of effect from potential expansion of those facilities is speculative and would be dependent on Project-level analysis.

3.5.7 CEQA Summary of Potential Impacts

Based on the information provided in Sections 3.5.4 and 3.5.5, and considering the CEQA Guidelines Appendix G Checklist questions for air quality and GHGs, the Build Alternative Options would have potentially significant impacts on air quality and GHGs 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 air quality

and GHG. However, because the infrastructure and station sites have not been selected, some areas that may contain sensitive land uses may be significantly impacted. At the Tier 1/Program analysis level, it is not possible to know the location, extent, and particular characteristics of impacts on these areas. Proposed programmatic mitigation measures strategies discussed in Section 3.5.8 would be applied to reduce potential impacts.

Table 3.5-17 summarizes the CEQA significance conclusions for the Build Alternative Options; the proposed programmatic mitigation strategies that could be applied to minimize, reduce, or avoid the potential impact, 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.

Table 3.5-17. CEQA Summary of Impacts on Air Quality and Greenhouse Gases

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<i>Would the Program conflict with or obstruct implementation of the applicable air quality plan?</i>		
<i>Construction</i>		
Western Section – No Impact. No construction impacts are anticipated during at the Tier 1/Program EIS/EIR evaluation level because no physical improvements are proposed or required in the Western Section under Build Alternative Options 1, 2, and 3.	Not applicable	Not applicable
Eastern Section – Less Than Significant. The SCAQMD Air Quality Management Plan is a regional blueprint for achieving air quality standards and healthful air through various measures, such as trip reduction strategies, vehicle substitution, VMT reduction, and technological improvements. While construction activities may generate localized air quality emissions, construction of the Program under Build Alternative Options 1, 2, and 3 would result in the operation of an enhanced passenger rail system within the Eastern Section of the Program Corridor. Impacts are anticipated to be less than significant at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Options 1, 2, and 3.	Not applicable	Not applicable
<i>Operation</i>		
Western Section – Less Than Significant. The SCAQMD Air Quality Management Plan is a regional blueprint for achieving air quality standards and healthful air through various measures, such as trip reduction strategies, vehicle substitution, VMT reduction, and technological improvements. Operation of an enhanced passenger rail system within the Western Section of the Program Corridor would reduce VMTs within the region, which would have a corresponding reduction in air quality emissions generated. Since the Program would improve regional air quality through VMT reductions and technological improvements, the Project would not conflict with or obstruct implementation of the SCAQMD Air Quality Management Plan. Impacts are anticipated to be less than significant at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Options 1, 2, and 3.	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Less Than Significant. Operation of an enhanced passenger rail system within the Eastern Section of the Program Corridor would reduce VMTs within the region, which would have a corresponding reduction in air quality emissions generated. Since the Program would improve regional air quality through VMT reductions and technological improvements, the Project would not conflict with or obstruct implementation of the SCAQMD Air Quality Management Plan. Impacts are anticipated to be less than significant at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Options 1, 2, and 3.</p>	Not applicable	Not applicable
<p><i>Would the Program result in cumulatively considerable net increase of any criteria pollutant for which the region is non-attainment under an applicable federal or state ambient air quality standard?</i></p>		
<p><i>Construction</i></p>		
<p>Western Section – No Impact. No construction impacts are anticipated during at the Tier 1/Program EIS/EIR evaluation level because no physical improvements are proposed or required in the Western Section under Build Alternative Options 1, 2, and 3.</p>	Not applicable	Not applicable
<p>Eastern Section – Potentially Significant. Potential impacts associated with air quality construction emissions depend of the location of new stations and other rail infrastructure improvements, which are currently unknown. Construction of these improvements could require large scale construction activities over an extended period of time. A detailed air quality construction analysis cannot be considered at the Tier 1/Program EIS/EIR level because such an analysis at this stage would be too speculative, given the exact location and duration of construction associated with station facilities and other rail infrastructure improvements is unknown at this time. Therefore, potentially significant impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Options 1, 2, and 3. Site-specific impacts would be determined during the Tier 2/Project-level analysis.</p>	<p>AQ-1 LU-2</p>	<p>Potentially Significant. AQ-1 and LU-2 would minimize, reduce, or avoid potential impacts associated with net increases of criteria pollutants; however, impacts may remain significant after mitigation.</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Operation		
<p>Western Section – Potentially Significant. Potential impacts associated with air quality pollutant emissions would vary depending on the traffic generated in and around the existing stations as a result of operation associated with the enhanced passenger rail system. Therefore, there is potential for the Build Alternative Options to result in the generation of operational air quality pollutants at a localized level. However, it is anticipated that at the regional level, operation of the Program within the Western Section of the Program Corridor would result in a reduction of VMTs, which would result in a corresponding reduction in regional air quality pollutants generated. Therefore, potentially significant impacts associated with localized air quality emissions are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Options 1, 2, and 3. Once Tier 2/Project-level details are known, a quantitative air quality analysis would be prepared to identify and evaluate air quality emissions during operation.</p>	AQ-1	<p>Potentially Significant. AQ-1 would minimize, reduce, or avoid potential impacts from air quality emissions; however, impacts may remain significant at the localized level after mitigation.</p>
<p>Eastern Section – Potentially Significant. Potential impacts associated with air quality pollutant emissions would vary depending on the location of proposed infrastructure, level of activity, specific operations, and number of new stations. However, these details are currently unknown; therefore, there is potential for the Build Alternative Options to result in an increase in air quality emissions at the localized level. However, it is anticipated that at the regional level, operation of the Program within the Eastern Section of the Program Corridor would result in a reduction of VMTs, which would result in a corresponding reduction in regional air quality pollutants generated. Therefore, potentially significant impacts associated with localized air quality emissions are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Options 1, 2, and 3. Once Tier 2/Project-level details are known, a quantitative air quality analysis would be prepared to identify and evaluate air quality emissions during operation.</p>	AQ-1	<p>Potentially Significant. AQ-1 would minimize, reduce, or avoid potential impacts from air quality emissions; however, impacts may remain significant at the localized level after mitigation.</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Would the Program expose sensitive receptors to substantial pollutant concentrations?		
Construction		
<p>Western Section – No Impact. No construction impacts are anticipated during at the Tier 1/Program EIS/EIR evaluation level because no physical improvements are proposed or required in the Western Section under Build Alternative Options 1, 2, and 3.</p>	Not applicable	Not applicable
<p>Eastern Section – Potentially Significant. Potential impacts associated with construction air quality emissions depend of the location of new stations and other rail infrastructure improvements and their proximity to sensitive receptors, which are currently unknown. A detailed construction air quality analysis cannot be considered at the Tier 1/Program EIS/EIR level because such an analysis at this stage would be too speculative, given the exact location and duration of construction associated with station facilities and other rail infrastructure improvements is unknown at this time. Therefore, potentially significant impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Options 1, 2, and 3. Site-specific air quality construction impacts would be identified and evaluated during the Tier 2/Project-level analysis.</p>	<p>AQ-1 LU-2</p>	<p>Potentially Significant. AQ-1 and LU-2 would minimize, reduce, or avoid potential impacts associated with net increases of criteria pollutants; however, impacts may remain significant after mitigation.</p>
Operation		
<p>Western Section – Potentially Significant. The increase in train service (two additional round-trip daily trains within the Program Corridor) would not change existing land use and is anticipated to result in a decrease in regional and local VMTs. Operation of the Program within the Western Corridor would enhance passenger rail services within an existing high-quality transit corridor. However, there is the potential for generation of air quality criteria pollutants associated with increases in vehicles accessing the existing stations to use the enhanced passenger rail service. Therefore, potentially significant impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Options 1, 2, and 3. Site-specific air quality impacts on sensitive receptors would be identified and evaluated during the Tier 2/Project-level analysis.</p>	AQ-1	<p>Potentially Significant. Operation of the Program is anticipated to result in a beneficial air quality impact at the regional level, as VMTs would be reduced. AQ-1 would minimize, reduce, or avoid potential impacts associated with cumulatively considerable net increases of criteria pollutants at the localized level; however, impacts at the local level may remain significant after mitigation.</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Potentially Significant. Potential impacts are dependent on the location of infrastructure improvements and station locations. Temporary emissions would be generated during construction, and permanent emissions would be generated by vehicles and locomotives at the stations; however, pollutant emissions would vary daily depending on the level of activity, specific operations, number of new stations, and prevailing weather. Therefore, potentially significant impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Options 1, 2, and 3. Site-specific air quality impacts on sensitive receptors would be identified and evaluated during the Tier 2/Project-level analysis.</p>	<p>AQ-1</p>	<p>Potentially Significant. Operation of the Program is anticipated to result in a beneficial air quality impact at the regional level, as VMTs would be reduced. AQ-1 would minimize, reduce, or avoid potential impacts associated with cumulatively considerable net increases of criteria pollutants at the localized level; however, impacts at the local level may remain significant after mitigation.</p>
<p><i>Would the Program result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?</i></p>		
<p><i>Construction</i></p>		
<p>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 in the Western Section under Build Alternative Options 1, 2, and 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – Less than Significant. Construction activities may generate odors from construction equipment and vehicles (e.g., diesel exhaust). However, these impacts would be short term and limited in extent at any given time and range. Therefore, less than significant impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Options 1, 2, and 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Operation		
<p>Western Section – Less than Significant. Operation of the Program would generate odors from the operation of the additional passenger rail trains and the continued operation of the existing station facilities. However, these types of uses and generation of odors already occur within the Western Section of the Program Corridor. The types of uses are not within a category of land uses that are associated with objectionable odors. Therefore, less than significant impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Options 1, 2, and 3.</p>	Not applicable	Not applicable
<p>Eastern Section – Less than Significant. Operation of the Program in the Eastern Section of the Program Corridor would not result in objectionable odors because the Build Alternative Options do not include any land uses identified by SCAQMD as being associated with objectionable odor generation. Therefore, less than significant impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Options 1, 2, and 3.</p>	Not applicable	Not applicable
<p><i>Would the Program generate GHG emissions, either directly, or indirectly, that may have a significant impact on the environment?</i></p>		
Construction		
<p>Western Section – No Impact. No construction impacts are anticipated during at the Tier 1/Program EIS/EIR evaluation level because no physical improvements are proposed or required in the Western Section under Build Alternative Options 1, 2, and 3.</p>	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Potentially Significant. Construction of the Build Alternative Options would generate GHG emissions. Construction of these improvements could require large scale construction activities over an extended period of time. A detailed construction GHG analysis cannot be considered at the Tier 1/Program EIS/EIR level because such an analysis at this stage would be too speculative, given the exact location and duration of construction associated with station facilities and other rail infrastructure improvements is unknown at this time. Therefore, potentially significant impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Options 1, 2, and 3. Site-specific impacts would be identified and evaluated during the Tier 2/Project-level analysis.</p>	<p>GHG-1 LU-2</p>	<p>Less than Significant. GHG-1 and LU-2 would minimize, reduce, or avoid potential impacts through design and further analysis.</p>
<p>Operation</p>		
<p>Western Section – Potentially Significant. Operation of the Build Alternative Options would generate GHG emissions. However, the Build Alternative Options would result in overall energy savings and reduce the transportation system’s impact on climate change because rail transit, and public transportation more generally, produces significantly lower GHG emissions per passenger mile than private single-occupancy vehicles. Based on projected ridership and VMT reductions, passenger rail use within the Program Corridor would decrease VMT and related mobile-source emissions. This would be offset somewhat by locomotive operations and train station facility operations that would generate GHG emissions. Therefore, potentially significant impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Options 1, 2, and 3. Further analysis would be conducted during Tier 2/Project-level evaluation.</p>	<p>GHG-2 LU-3</p>	<p>Less than Significant. GHG-2 and LU-3 would minimize, reduce, or avoid potential impacts through design and further analysis. While operation of the Program would generate GHG emissions, the Program is also anticipated to result in regional GHG reduction benefits.</p>
<p>Eastern Section – Potentially Significant. Operation of the Build Alternative Options would generate GHG emissions. However, the Build Alternative Options would result in overall energy savings and reduce the transportation system’s impact on climate change because rail transit, and public transportation more generally, produces significantly lower GHG emissions per passenger mile than private single-occupancy vehicles. Based on projected ridership and</p>	<p>GHG-2 LU-3</p>	<p>Less than Significant. GHG-2 and LU-3 would minimize, reduce, or avoid potential impacts through design and further analysis. While operation of the Program would generate GHG emissions, the</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>VMT reductions, passenger rail use within the Program Corridor would decrease VMT and related mobile-source emissions. This would be offset somewhat by locomotive operations and train station facility operations that would generate GHG emissions. However, the specific Tier 2/Project-level details necessary to determine impacts are unavailable at this time because station locations and infrastructure components are unknown. Therefore, further analysis would be considered during Tier 2/Project-level analysis.</p>		<p>Program is also anticipated to result in regional GHG reduction benefits.</p>
<p><i>Would the Program conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?</i></p>		
<p><i>Construction</i></p>		
<p>Western Section – No Impact. No construction impacts are anticipated during at the Tier 1/Program EIS/EIR evaluation level because no physical improvements are proposed or required in the Western Section under Build Alternative Options 1, 2, and 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – Less Than Significant. While construction activities may generate GHG emissions, construction of the Program under the Build Alternative Options would result in the operation of an enhanced passenger rail system within the Eastern Section of the Program Corridor. The operation of the enhanced passenger rail system would reduce VMTs within the region, which would have a corresponding reduction in GHG emissions generated. Since the Program is anticipated to result in beneficial GHG emission reductions through VMT reductions and technological improvements, the Program would not conflict with or obstruct implementation of the plans, policies, or programs associated with GHG reduction efforts. Less than significant impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Options 1, 2, and 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p><i>Operation</i></p>		
<p>Western Section – Less Than Significant. Operation of an enhanced passenger rail system within the Western Section of the Program Corridor would reduce VMTs within the region,</p>	<p>Not applicable</p>	<p>Not applicable</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>which would have a corresponding reduction in GHG emissions generated. Since the Program is anticipated to result in reductions of regional GHG emissions through VMT reductions and technological improvements, the Program would not conflict with or obstruct implementation of the plans, policies, or programs associated with GHG reduction efforts. Less than significant impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Options 1, 2, and 3.</p>		
<p>Eastern Section – Less Than Significant. Operation of an enhanced passenger rail system within the Eastern Section of the Program Corridor would reduce VMTs within the region, which would have a corresponding reduction in GHG emissions generated. Since the Program is anticipated to result in reductions of regional GHG emissions through VMT reductions and technological improvements, the Program would not conflict with or obstruct implementation of the plans, policies, or programs associated with GHG reduction efforts. Less than significant impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Options 1, 2, and 3.</p>	Not applicable	Not applicable

Notes:

EIR=environmental impact report; EIS=environmental impact statement; FRA=Federal Railroad Administration; GHG=greenhouse gas; SCAQMD=South Coast Air Quality Management District; VMT=vehicle miles traveled

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3.5.8 Avoidance, Minimization, and Mitigation Strategies

Identified below are proposed programmatic mitigation strategies for further consideration in the Tier 2/Project-level analysis. During the Tier 2/Project-level analysis, construction and operational impacts would be quantified, and BMPs and site-specific mitigation measures would be recommended. Proposed programmatic mitigation strategies or design considerations, consistent with state and federal regulations may include, but are not limited to, the following:

Mitigation Strategy AQ-1: During Tier 2/Project-level analysis, a site-specific air quality analysis shall be required for the specific rail infrastructure or station facilities proposed. If an air quality analysis is warranted at the Tier 2/Project level, the air quality analysis shall be prepared using the standards and procedures of the South Coast Air Quality Management District and applicable local jurisdiction(s) in which the Project is located. The air quality analysis shall include analysis of construction and operational air quality impacts, including identification and analysis of:

- Construction equipment to be used and corresponding air quality emissions that could be generated from construction activities.
- Construction and operational traffic impacts analysis, including quantification of construction emissions and comparison with South Coast Air Quality Management District significance thresholds.
- Sensitive receptors and exposure of those sensitive receptors to air quality emissions during construction and operational activities. If sensitive receptors are located within or adjacent to the Project site, a health risk assessment to assess cancer risks and non-carcinogenic hazards for sensitive receptors may be required.
- Best management practices to be implemented during construction activities such as practices to limit idling and construction emissions, the use of ozone precursor emission controls, implementation of diesel emission reduction plans, and use of California Air Resources Board-certified equipment for pose combustion controls
- If a Project is located within an area designated as non-attainment for federal particulate matter 10 microns or less and particulate matter 2.5 microns or less standards, a particulate matter 10 microns or less and particulate matter 2.5 microns or less hot spot analysis shall be prepared based on guidance provided in Transportation Conformity Guidance for Qualitative Hot Spot Analyses in Particulate Matter 2.5 Microns or Less and Particulate Matter 10 Microns or Less Non-attainment and Maintenance Areas (United States Environmental Protection Agency 2006). As part of the hot-spot analyses, a project-level

conformity determination shall include a finding of whether the Project is a Project of Air Quality Concern.

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 onsite 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])

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 resources 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.

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3.6 Noise and Vibration

3.6.1 Introduction

This section identifies potential noise-sensitive land uses within the Tier 1/Program EIS/EIR Study Area and evaluates the noise- and vibration-related effects associated with the No Build Alternative and Build Alternative Options on these areas. Information contained in this section is summarized from the *Noise and Vibration Technical Memorandum* (Appendix F of this Tier 1/Program EIS/EIR).

3.6.2 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 potential noise-sensitive land uses within the Tier 1/Program EIS/EIR Study Area, and evaluated the potential impacts that could occur from implementation of the Build Alternative Options.

Federal

Environmental Protection Agency Guidance

In 1974, U.S. EPA published *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*, a comprehensive document that identifies noise levels to protect public health and welfare against hearing loss, annoyance, and activity interference (U.S. EPA 1974). In response to the requirements of the Noise Control Act, U.S. EPA identified indoor and outdoor noise limits to protect public health and welfare. U.S. EPA identified outdoor day-night average noise level (L_{dn}) limits of 55 decibels (dB) and indoor L_{dn} limits of 45 dB as desirable for protecting against speech interference and sleep disturbance in residential areas and at educational and health care facilities. The sound-level criterion for protecting against hearing damage in commercial and industrial areas is identified as the 24-hour equivalent sound level (L_{eq}) value of 70 dB (both outdoors and indoors). Based on attitudinal surveys, U.S. EPA determined that a 5 dB increase in L_{dn} or L_{eq} could result in a change in community reaction (U.S. EPA 1974). L_{dn} and L_{eq} are described in further detail in Appendix F of this Tier 1/Program EIS/EIR.

Federal Transit Administration Noise and Vibration Impact Criteria

FTA has published impact assessment procedures and criteria pertaining to noise and vibration. The *FTA Transit Noise and Vibration Impact Assessment Manual* (FTA Manual) (FTA 2018) is used for rail projects where conventional train speeds are below 90 miles per hour (FRA 2012). Therefore, FRA conventional rail projects generally use noise and vibration assessment guidance from the FTA Manual. The FTA Manual also includes assessment methods for noise and vibration from construction.

Federal Highway Administration Noise Impact Criteria

Implementation of the Program may involve the construction of new roads and/or grade crossings. The need for an impact analysis and evaluation of noise abatement for these types of infrastructure improvements depends on whether new project roadways meet the definition of a Type I Project as defined by FHWA.

Procedures for preparing operational and construction noise studies and evaluating noise abatement considered for federal and federal-aid highway projects are provided under 23 CFR Part 772. Under 23 CFR Part 772.7, highway projects are categorized as Type I, Type II, or Type III Projects.

FHWA defines a Type I Project as a proposed federal or federal-aid highway project for the construction of a highway at a new location or the physical alteration of an existing highway that significantly changes either the horizontal or vertical alignment of the highway. The following projects are also considered to be Type I Projects:

- The addition of a through-traffic lane. This includes the addition of a through-traffic lane that functions as a high-occupancy vehicle lane, high-occupancy toll lane, bus lane, or truck climbing lane;
- The addition of an auxiliary lane, except when the auxiliary lane is a turn lane;
- The addition or relocation of interchange lanes or addition of ramps to a quadrant to complete an existing partial interchange;
- Restriping existing pavement for the purpose of adding a through-traffic lane or an auxiliary lane; and
- The addition of a new weigh station, rest stop, ride-share lot, or toll plaza or substantial alteration to such features.

If a project is determined to be a Type I Project under this definition, the entire project area, as defined in the environmental document, is a Type I Project. Type I Projects include those that add an interchange, ramp, auxiliary lane, or truck-climbing lane to an existing highway or widen an existing

ramp by a full lane width for its entire length. Projects that are unrelated to increased noise levels, such as striping, lighting, signing, and landscaping projects, are not considered Type I Projects. A Type II Project is a noise barrier retrofit project that involves no changes to highway capacity or alignment. A Type III Project is a project that does not meet the classifications of a Type I or Type II Project. Type III Projects do not require a noise analysis.

Under 23 CFR Part 772.11, noise abatement must be considered for Type I Projects if the project is predicted to result in a traffic noise impact. In such cases, 23 CFR Part 772 requires that the project sponsor “consider” noise abatement before adoption of the final NEPA document. This process involves identification of noise abatement measures that are reasonable, feasible, and likely to be incorporated into the project, as well as the identification of noise impacts for which no apparent solution is available.

Traffic noise impacts are considered to occur when the predicted noise level in the design year approaches or exceeds noise abatement criteria (NAC) specified in 23 CFR Part 772, or a predicted noise level substantially exceeds the existing noise level (a “substantial” noise increase). However, 23 CFR Part 772 does not specifically define the terms “substantial increase” or “approach”; these criteria are defined in the state-level implementation of 23 CFR Part 772. An NAC value of 67 A-weighted decibel (dBA) L_{eq} is used for residences, schools, parks, places of worship, active sport areas, and other land uses where there are areas of outdoor frequent human use.

Noise Control Act of 1972

The Noise Control Act of 1972 (Public Law 92 574) established a requirement for all federal agencies to administer their programs in a manner that promotes an environment that is free of noise that jeopardizes public health or welfare. U.S. EPA was assigned the following responsibilities:

- Providing information to the public regarding the identifiable effects of noise on public health and welfare
- Publishing information on the levels of environmental noise to protect the public health and welfare with an adequate margin of safety
- Coordinating federal research and activities related to noise control
- Establishing federal noise emission standards for selected products distributed in interstate commerce

State

California Department of Transportation Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects

The Traffic Noise Analysis Protocol (Protocol) developed by Caltrans is the implementation of 23 CFR Part 772 in California. The Protocol specifies the policies, procedures, and practices to be used by agencies that sponsor new construction or reconstruction of federal or federal-aid highway projects. The Protocol defines a noise increase from a roadway project as substantial when the predicted noise levels with project implementation exceed existing noise levels by 12 dBA or more. The Protocol also states that a sound level approaches the NAC when the sound level is within 1 dB of the NAC value specified in 23 CFR Part 772 (e.g., 66 dBA would be considered to be approaching the NAC of 67 dBA for residential use, but 65 dBA would not be considered to be approaching the NAC).

California Department of Transportation Vibration Standards

For continuous/frequent intermittent sources, such as pile driving, Caltrans recommends a 0.25-inch-per-second peak particle velocity (PPV) threshold for “historic and some old buildings” and a PPV of 0.3 inch per second for “older residential structures” (Caltrans 2004). These criteria are directed primarily toward, but not limited to, all construction related to pile driving, demolition, and pavement-breaking activities.

California Noise Control Act

The California Noise Control Act of 1973 requires a city or county to identify local noise sources and analyze and quantify to the extent practicable current and projected noise levels from various sources, including highways and freeways; passenger and freight railroad operations; ground rapid transit systems; commercial, general, and military aviation and airport operations; and other stationary ground noise sources.

Regional

Los Angeles County General Plan

The Noise Element of the *Los Angeles County 2035 General Plan* (County of Los Angeles 2015) provides goals, objectives, policies, and programs related to noise mitigation and noise compatibility with adjacent land uses. These goals include the minimization of impacts on noise-sensitive land uses by ensuring adequate site design, acoustical construction, and the use of barriers, berms, or

additional engineering controls through best available technologies and utilizing traffic management and noise suppression techniques to minimize noise from traffic and transportation systems.

Orange County General Plan

The Noise Element of the *Orange County General Plan* (Orange County 2005) provides goals, objectives, and policies related to noise. These include transportation system noise control, noise abatement and monitoring, and land use and planning integration to prevent new noise and land use conflicts.

County of Riverside General Plan

The Noise Element of the *County of Riverside General Plan* (County of Riverside 2015) includes goals and policies to reduce compatibility impacts between sensitive land uses and noise generation sources. The policies identified in the plan are intended to ensure that land use and siting decisions take noise generation and reduction into account.

County of San Bernardino General Plan

The Noise Element of the *County of San Bernardino General Plan* (County of San Bernardino 2014) identifies noise abatement provisions to guide local decisions. The plan includes goals and policies to minimize potential land use compatibility conflicts resulting from exposure of county residents to mobile and stationary noise sources.

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.

3.6.3 Methods for Evaluating Environmental Effects

Because this analysis was conducted at a Tier 1/Program EIS/EIR service-evaluation level, a screening-level noise and vibration impact assessment was completed rather than a detailed quantitative evaluation of project noise and vibration levels. Detailed quantitative analysis would occur during Tier 2/Project-level analysis. Assessment of noise and vibration impacts associated with the Program is based on guidance in the FTA Manual (FTA 2018).

Construction Noise Assumptions

The FTA Manual does not contain standardized criteria for assessing construction noise impacts. Instead, it includes guidelines for suggested noise limits for residential uses exposed to construction noise to describe levels that may result in an adverse community reaction. These guidelines are summarized in Table 3.6-1.

Table 3.6-1. Federal Transit Administration Construction Noise Impact Limit Guidelines

Land Use	8-hour L_{eq} (dBA), Day	8-hour L_{eq} (dBA), Night
Residential	80	70
Commercial	85	85
Industrial	90	90

Source: FTA 2018

Notes:

dBA=A-weighted decibel; L_{eq} =equivalent sound level

The noise impact limit guidelines are recommended to be used in construction noise assessment of transit projects under FTA and are appropriate given federal involvement in the Program. Thresholds for construction in local jurisdictions, if more stringent, would be identified as part of a Tier 2/Project-level analysis. In many cases, local jurisdictions do not regulate daytime construction noise, and FTA daytime standards are often used to determine potential for community annoyance during construction. As such, local ordinances were not evaluated for potential noise effects under this Tier 1/Program EIS/EIR service-level evaluation. FTA guidelines for temporary construction, as summarized in Table 3.6-1, provide a reasonable set of indicators that can be used as impact thresholds for this Tier 1/Program EIS/EIR service-level evaluation.

Individual types of heavy construction equipment commonly used for construction activities are expected to generate noise levels ranging from 74 to 89 dBA at 50 feet. Given construction requirements, pile drivers could be used. Pile drivers typically generate a maximum noise level of up to 101 dBA at 50 feet. The construction noise level at a given receptor would depend on the type of construction activity, the noise level generated by that activity, and the distance and shielding between the activity and the noise-sensitive receptor. Additional details for noise levels produced by commonly used construction equipment is provided in Appendix F of this Tier 1/Program EIS/EIR.

Based on FTA guidance, a construction noise impact may occur if construction equipment exceeds 80 dBA L_{eq} (8 hours) at a residential location between the hours of 7:00 a.m. and 10:00 p.m. or 70 dBA L_{eq} (8 hours) between the hours of 10:00 p.m. and 7:00 a.m. In addition, thresholds for

construction noise may be set at the local level, according to the expected hours of equipment operation and the noise limits specified in the noise ordinances of the applicable local jurisdiction(s).

Rail Operation Noise Assumptions

Operational noise impacts associated with the Program are based on guidance in the FTA Manual. The FTA Manual describes the noise impact criteria that have been adopted to assess noise contributions and potential impacts on the existing environment from rapid transit sources. The noise impact criteria defined in the FTA Manual are based on an objective that calls for maintaining a noise environment that is considered acceptable for noise-sensitive land uses. For assessing noise from transit operations, this Tier 1/Program service-level evaluation relies on FTA's three land use noise categories:

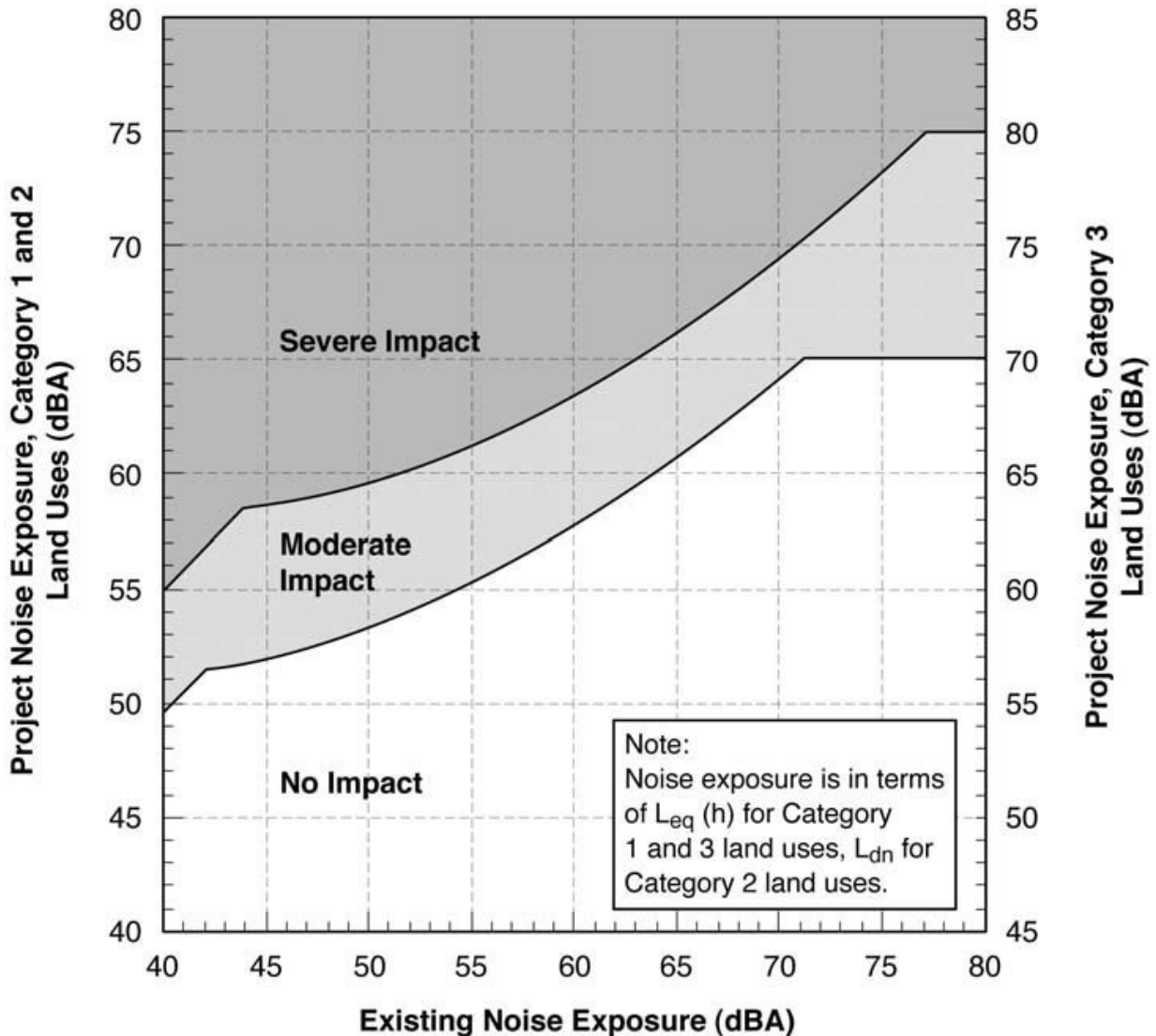
- **Category 1:** Tracts of land where quiet is an essential element of their intended purpose, such as outdoor amphitheaters, concert pavilions, and national historic landmarks with significant outdoor use.
- **Category 2:** Residences and buildings where people normally sleep, including homes, hospitals, and hotels.
- **Category 3:** Institutional land uses (e.g., schools, places of worship, libraries) that are typically available during daytime and evening hours. Other uses in this category can include medical offices, conference rooms, recording studios, concert halls, cemeteries, monuments, museums, historical sites, parks, and recreational facilities.

Noise exposure values are reported as the L_{dn} average sound level for residential land uses (Category 2) or the L_{eq} over a 1-hour time period for other land uses (Categories 1 and 3).

Commercial and industrial uses are not included in the vast majority of cases because they are generally compatible with higher noise levels. Exceptions include commercial land uses with a feature that receives significant outdoor use, such as a playground, or uses that require quiet as an important part of their function, such as recording studios.

In the FTA Manual, noise impact criteria for operation of rapid transit facilities consider a project's contribution to existing noise levels, using a sliding scale, according to the land uses affected. The criteria correspond to heightened community annoyance because of the introduction of a new transit facility relative to existing ambient noise conditions. Noise impacts are assessed by comparing existing outdoor exposures with future project-related outdoor noise levels, as shown on Figure 3.6-1. The criterion for each degree of impact is based on a sliding scale that is dependent on the existing noise exposure and the increase in noise exposure with the project.

Figure 3.6-1. Federal Transit Administration Noise Impact Criteria



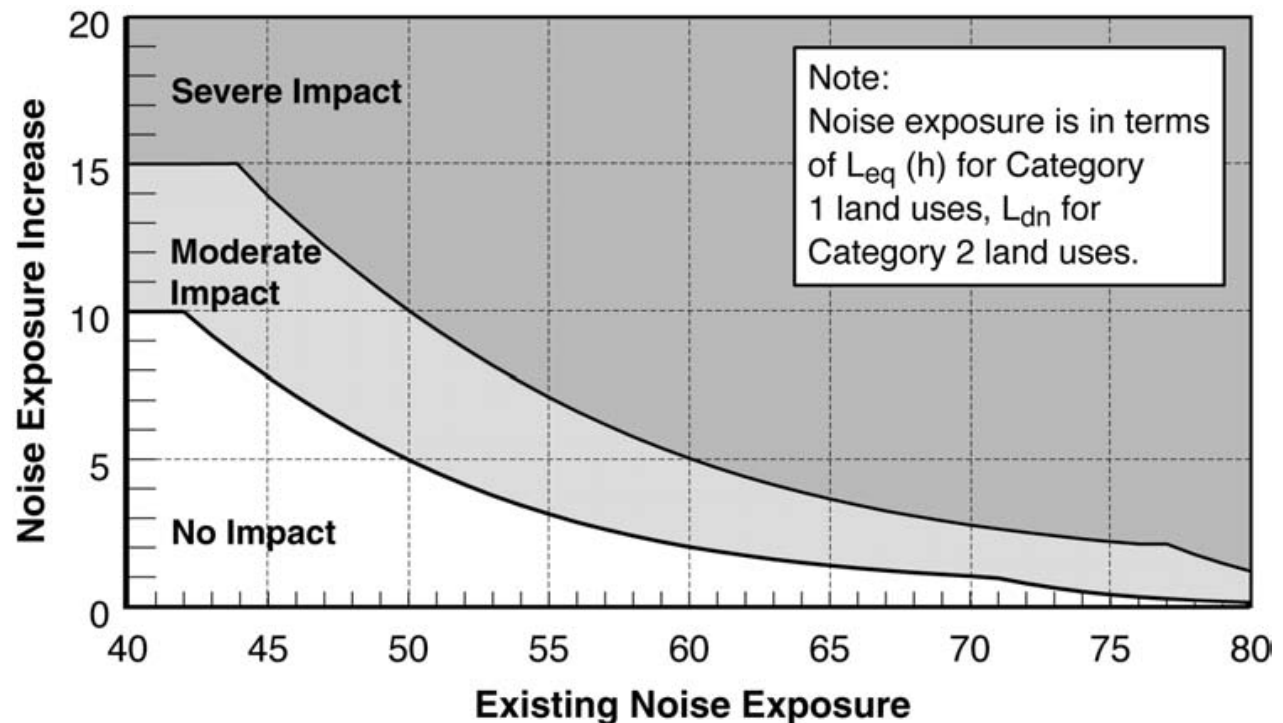
Source: FTA 2018

For assessing noise from transit operations, this Tier 1/Program service-level evaluation relies on the following noise impact classifications:

- **No Impact:** A project, on average, would result in an insignificant increase in the number of instances where people are highly annoyed by new noise.
- **Moderate Impact:** The change in cumulative noise is noticeable to most people but may not be enough to cause strong adverse community reactions.
- **Severe Impact:** A significant percentage of people would be highly annoyed by the noise, perhaps resulting in vigorous community reaction.

A project's noise contribution relative to the existing noise levels, as shown on Figure 3.6-1, differs according to the level of existing noise exposure. For example, a project contribution of 59 dBA L_{dn} would be considered a severe impact at a Category 2 receptor with an existing noise exposure of up to 50 dBA L_{dn} (a difference of 9 dBA), whereas a project contribution of 69 dBA L_{dn} would result in a severe impact at a Category 2 receptor with an existing noise exposure of up to 70 dBA L_{dn} (a difference of 1 dBA). The impact curves shown on Figure 3.6-1 are based on community increases in cumulative noise exposure relative to existing conditions, as depicted on Figure 3.6-2. The justification for the sliding scale depicted in these figures recognizes that people who are already exposed to high levels of noise in the ambient environment are expected to tolerate small increases in noise in their community according to the level of their existing noise exposure.

Figure 3.6-2. Increase in Cumulative Noise Levels Allowed by Criteria



Notes:

Noise exposure increase impact curves are adjusted by +5 dB for Category 3 land uses.

The rail noise model utilized as part of this Tier 1/Program EIS/EIR service-level evaluation focuses on land uses that could be subject to Program-related transit noise impacts. Although all developed land uses were evaluated in this analysis, the focus of the impact evaluation was on outdoor locations with frequent human use, institutional land uses, and residential buildings where people normally sleep. The FTA Manual specifies that criteria are to be applied to compare future noise with existing noise rather than future noise with projections of future no build noise exposure.

Existing noise levels for receptor locations were derived from projected daily freight, intercity passenger, and commuter rail trips along the existing corridor, described in Section 3.6.4. Given the high density of residential use along much of the Program Corridor, existing noise levels from rail operation were calculated by adjusting varying distances between noise-sensitive receptors and noise sources. The primary sources of noise along the Program Corridor were assumed to consist of either wayside noise from train passbys or grade crossings where trains are required to sound horns as they approach within 0.25 mile of the crossing.

The noise model was based on FTA single-event source levels for train vehicles and horns, as defined in the FTA Manual. For this Tier 1/Program EIS/EIR service-level evaluation, rail vehicle source levels specified in the FTA General Assessment methodology were used to determine projected future Program-induced noise and vibration levels as a function of distance and to identify impacts on noise-sensitive receivers. Noise contributions from rail vehicles were calculated using the noise source levels for at-grade rail transit vehicles operating on welded rail, as outlined in the FTA Manual. Calculated Program noise levels were then compared with moderate and severe impact criteria, according to existing ambient levels at a given receptor location.

A noise impact is considered to occur at a receptor location if the Program-related noise exposure for the receptor's applicable land use category (Category 1, 2, or 3) equals or exceeds the FTA criterion for a moderate or severe impact, as shown on Figure 3.6-1, based on the existing noise exposure for the receptor. The analysis assumes that the configuration of the track would be the same under both existing and future conditions as the Build Alternative Options would use the existing railroad ROW. Therefore, the focus of the analysis was on the overall increase in daily train trips (four additional daytime [7:00 a.m. to 10:00 p.m.] one-way intercity train trips per day).

Traffic Noise Assumptions

Noise analysis procedures specified in the Caltrans Protocol would be used to evaluate Program highway improvements considered to be Type I projects, as defined by FHWA. For roadways where changes in traffic volume are anticipated due to implementation of the Program, traffic noise levels under the Build Alternative Options would be analyzed at the Tier 2/Project-level based on anticipated changes in ridership and subsequent effects on traffic. A traffic noise impact is considered to occur where the increase in traffic volume on a given road segment would result in a 3 dBA increase relative to existing conditions.

Construction Vibration Assumptions

For assessing vibration effects associated with the Program, this Tier 1/Program service-level evaluation relies on the FTA's vibration impact criteria for the land use categories summarized in Table 3.6-2. The criteria in Table 3.6-2 are based on the frequency of events and related to

ground-borne vibration that can cause human annoyance or interfere with the use of vibration-sensitive equipment. The criteria for acceptable ground-borne vibration are based on the velocity in decibels (VdB) for a single event and expressed in terms of root-mean-square velocity levels.

Table 3.6-2. Ground-borne Vibration Impact Criteria for General Assessment

Land Use Category	Vibration Impact Level: Frequent Events ^a (VdB re 1 micro inch per second)	Vibration Impact Level: Occasional Events ^b (VdB re 1 micro inch per second)	Vibration Impact Level: Infrequent Events ^c (VdB re 1 micro inch per second)
Category 1: High Sensitivity ^e	65 VdB ^d	65 VdB ^d	65 VdB ^d
Category 2: Residential ^f	72 VdB	75 VdB	80 VdB
Category 3: Institutional ^g	75 VdB	78 VdB	83 VdB

Source: FTA 2018

Notes:

- ^a The term *frequent events* is defined as more than 70 vibration events from the same source each day. Most rapid transit projects fall into this category.
- ^b The term *occasional events* is defined as between 30 and 70 vibration events from the same source each day. Most commuter trunk lines have operations in this range.
- ^c The term *infrequent events* is defined as fewer than 30 vibration events of the same kind each day. This category includes most commuter rail branch lines.
- ^d This criterion limit is based on levels that are acceptable for most moderately sensitive equipment, such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the heating, ventilation, and air conditioning systems and stiffened floors.
- ^e This category includes land where quiet is an essential element of its intended purpose. Example land uses include preserved land for serenity and quiet, outdoor amphitheaters and concert pavilions, and national historic landmarks with considerable outdoor use. Recording studios and concert halls are also included in this category.
- ^f This category is applicable all residential land use and buildings where people normally sleep, such as hotels and hospitals.
- ^g This category is applicable to institutional land uses with primarily daytime and evening use. Example land uses include schools, libraries, theaters, and churches where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material. Places for meditation or study associated with cemeteries, monuments, museums, campgrounds, and recreational facilities are also included in this category.

VdB=velocity in decibels

FTA analysis guidelines also call for an investigation of the potential for vibration-induced damage to fragile or extremely fragile buildings (FTA 2018). Damage to a building is possible (but not necessarily probable) if ground-borne vibration levels exceed the following criteria:

- A 0.20-inch-per-second PPV (approximately 100 VdB) for non-engineered timber and masonry buildings
- A 0.12-inch-per-second PPV (approximately 95 VdB) for buildings that are extremely susceptible to vibration damage

Potential ground-borne vibration that could occur during construction activities was analyzed using the methodology discussed in Chapter 12 of the FTA Manual. For this Tier 1/Program service-level evaluation, a vibratory roller (source vibration level of 0.21-inch-per-second PPV) was identified as the piece of non-impact equipment that could produce the highest vibration levels. Additional detail for vibration levels produced by commonly used construction equipment is provided in Appendix F of this Tier 1/Program EIS/EIR.

Vibration from use of construction equipment within the Program Corridor could cause damage to buildings or structures adjacent to the Build Alternative Options. The potential for building damage was determined by using FTA methodology, including the damage potential vibration thresholds described under FTA vibration impact criteria. In addition, construction-related vibration impacts could occur if vibration levels from construction equipment are perceptible at a receiving residential land use (i.e., 75 VdB, described as the annoyance impact criterion for occasional events at Category 2 land uses, summarized in Table 3.6-2).

Operational Vibration Assumptions

The FTA procedure for a general vibration assessment was used for the analysis of ground-borne vibration levels from trains within the existing Program Corridor. For the operational vibration analysis, the number of daily events was classified under the FTA category of frequent events for the Western Section, which corresponds to more than 70 vibration events from freight, intercity passenger, and commuter trains per day, as defined in Table 3.6-2. For the Eastern Section, the number of daily events was classified under the FTA category of occasional events, which corresponds to between 30 and 70 vibration events from freight and intercity passenger trains per day. Land use designations for Category 2 (residences and lodging facilities) and Category 3 (institutional use) were used in the analysis.

Vibration source levels were derived from the FTA Manual using the generalized surface vibration curve for locomotive-powered passenger or freight vehicles. Soil propagation characteristics were assumed to be normal. For the generalized ground-surface vibration curve, root-mean-square

velocity-level data at the receptor were used, with the distance of interest adjusted according to vehicle speed (a maximum of 79 miles per hour was assumed throughout the Program Corridor), wheel condition (normal), track condition (normal), track treatments, and the number of floors above grade-to-receptor locations. Vibration-level adjustments for special track work were applied as applicable in areas adjacent to vibration-sensitive land uses.

Ground-borne vibration impact criteria for the FTA general assessment were used to assess vibration impacts from train operations. Impacts would be triggered at a vibration-sensitive location if future vibration levels were to exceed the FTA general assessment criteria under FTA vibration criteria identified in Table 3.6-2, and predicted future vibration levels were to exceed existing vibration levels by 3 VdB or more.

Tier 1/Program EIS/EIR Study Area

The Tier 1/Program EIS/EIR Study Area for noise includes land uses that could be subject to Program-related transit noise impacts. Although all developed land uses were evaluated in this analysis, the focus of the impact evaluation was on outdoor locations with frequent human use, institutional land uses, and residential buildings where people normally sleep.

Data Sources

The data sources used to establish the existing conditions include information from U.S. EPA, FRA, and Caltrans.

Related Resources

Noise or vibration impacts identified in this analysis affect related resources identified in Table 3.6-3.

Table 3.6-3. Related Resources Affected by Noise and Vibration

Resource	Effects
Land Use and Planning (Section 3.2)	Sensitive land uses (residential uses, educational facilities) may be affected by increased noise/vibration.
Cultural Resources (Section 3.13)	Historic buildings or structures may be affected by increased vibration.
Parklands and Community Services (Section 3.14)	Sensitive land uses (parks and recreational areas) may be affected by increased noise/vibration.

Resource	Effects
Environmental Justice (Chapter 4)	Sensitive receptors in EJ communities may be affected by increased noise/vibration.

Notes:

EJ=environmental justice

3.6.4 Affected Environment

Noise and Vibration Sensitive Land Uses

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 in a natural condition. Much of the Program Corridor from Los Angeles to Redlands is urbanized. The Eastern Section of the Program Corridor east of Colton is less urbanized with vacant land comprising of the largest land use category.

Build Alternative Option 1 (Coachella Terminus)

Almost the entire Western Section of the Program Corridor passes through highly developed urban and suburban areas, including many areas with adjacent sensitive land uses, such as residences (Category 2), schools (Category 3), and other institutional uses (Category 3). The Western Section also extends through many commercial and industrial areas, which are generally not noise sensitive unless they are associated with areas of frequent outdoor use.

The Eastern Section of the Program Corridor is highly developed in many locations but also passes through sparsely populated rural areas and open space areas, including a large wind farm west of Palm Springs. There are several single- and multifamily residences (Category 2), lodging uses (Category 2), churches (Category 3), schools (Category 3), and other institutional uses (Category 3) within the Program Corridor. No Category 1 land uses were identified within the Program Corridor. Additional details related to land use within the Program Corridor, parks and schools located within the Program Corridor, and potentially historic buildings (which may be affected by vibration) are provided in Section 3.2, Land Use and Planning; Section 3.13, Cultural Resources; and Section 3.14, Parklands and Community Services; of this Tier 1/Program EIS/EIR.

Build Alternative Option 2 (Indio Terminus)

Distribution of existing land uses within the Western Section of the Program Corridor under Build Alternative Option 2 are the same as Build Alternative Option 1. There are fewer acres of land within Build Alternative Option 2 because of the shorter route alignment and reduced station options; however, Build Alternative Option 2 still contains several single- and multifamily residences (Category 2), lodging uses (Category 2), churches (Category 3), schools (Category 3), and other institutional uses (Category 3) within the Eastern Section.

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

Potential sensitive land uses within Build Alternative Option 3 are the same as those identified for Build Alternative Option 2.

Existing Noise Sources

The urban setting that constitutes most of the Western Section of the Program Corridor contains a mix of transportation and stationary noise sources associated with a highly developed area. Within the Eastern Section of the Program, there is a mix of urban, suburban, and rural areas that contain a similar mix of transportation and stationary noise sources. Noise from freeway and local traffic, transit, aircraft, heavy equipment, and industrial and commercial sources contributes to ambient noise along the Program Corridor. Train and traffic operations are assumed to be primary contributors to ambient noise within the Program Corridor.

Build Alternative Option 1 (Coachella Terminus)

Table 3.6-4 presents existing train operations from the three host railroads along the Program Corridor – UP, BNSF, and SCRRA (Metrolink). Operations vary considerably by segment, but both the Western and Eastern Sections of the Program Corridor have high-density, multiple-track main lines that support freight and passenger rail operations, which contribute to existing noise and vibration levels within the Program Corridor. The highest density segment in the Western Section is between Los Angeles and Fullerton and has an average of 86 daily trains, while the lowest density segment is between Fullerton and Atwood and has an average of 43 daily trains. The Eastern Section averages 43 daily trains along the Colton-Coachella segment, consisting of freight and passenger trains.

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Table 3.6-4. Existing Year (2018) Daily Train Operations within Program Corridor (One-Way Trips)

Endpoints	Eastbound Commuter Trains (SCRRA)	Westbound Commuter Trains (SCRRA)	Eastbound Intercity Trains (Amtrak, Pacific Surfliner)	Westbound Intercity Trains (Amtrak, Pacific Surfliner)	Eastbound Long Distance Passenger Trains (Amtrak)	Westbound Long Distance Passenger Trains (Amtrak)	Eastbound Freight Trains (UP, BNSF)	Westbound Freight Trains (UP, BNSF)	Total Average Daily Volume of Trains
Western Section (SCRRA – Host Railroad; Additional Operators – Amtrak, BNSF)									
Los Angeles (Union Station-Soto) ^a	14	14	12	12	1	1	0.5	0.5	55
Western Section (BNSF – Host Railroad; Additional Operators – Amtrak, SCRRA, UP)									
Los Angeles (Soto) ^a –Fullerton	14	14	12	12	1	1	16	16	86
Fullerton-Atwood	5	4	0	0	1	1	16	16	43
Atwood-Riverside	13	12	0	0	1	1	17	17	61
Riverside-Highgrove	10	10	0	0	1	1	27	27	76
Highgrove-Colton	4	4	0	0	1	1	27	27	64

Endpoints	Eastbound Commuter Trains (SCRRA)	Westbound Commuter Trains (SCRRA)	Eastbound Intercity Trains (Amtrak, Pacific Surfliner)	Westbound Intercity Trains (Amtrak, Pacific Surfliner)	Eastbound Long Distance Passenger Trains (Amtrak)	Westbound Long Distance Passenger Trains (Amtrak)	Eastbound Freight Trains (UP, BNSF)	Westbound Freight Trains (UP, BNSF)	Total Average Daily Volume of Trains
Eastern Section (UP – Host Railroad; Additional Operator – Amtrak)									
Colton-Coachella	0	0	0	0	0.5	0.5	21	21	43

Notes:

Daily train counts represent revenue train movements on a weekday (Monday-Friday). Freight train counts are based on Base Year (2013) daily freight train totals for the line segments shown above, as published in the 2018 *California State Rail Plan*, Appendix A.4, Table 20. Passenger and commuter train counts are based on the following public timetables in effect in September 2018: Metrolink “All Lines” timetable effective May 14, 2018, the 2018 LOSSAN Southern California Passenger Rail System Map and Timetables effective April 1, 2018, the Amtrak Southwest Chief timetable effective July 31, 2018, and the Amtrak Sunset Limited timetable effective March 11, 2018.

^a Soto interlocking (Milepost 144.4) in Los Angeles

LOSSAN=Los Angeles-San Diego-San Luis Obispo; SCRRA=Southern California Regional Rail Authority; UP=Union Pacific Railroad

Passenger trains, such as commuter and intercity trains, are operated on specific schedules and operate at higher maximum authorized speeds than freight trains using the Program Corridor. The number of freight trains per day and their days and times of operation can vary depending on customer requirements, including volumes at the Ports of Los Angeles and Long Beach. Freight and commuter trains are required to sound horns within 0.25 mile of grade crossings. This safety measure warns motor vehicle operators of an approaching train and is required under FRA regulations. Several grade crossings along the Western and Eastern Sections are located near noise-sensitive uses.

Existing noise levels associated with rail operations within the Program Corridor are calculated using methods in the FTA Manual, based on the existing frequency of train events. Calculated ambient noise levels from total daily train operations were calculated for wayside and horn noise, based on the existing operations are summarized in Table 3.6-5.

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Table 3.6-5. Ambient Noise Levels within Program Corridor from Existing Train Operations

Section	Train Noise Source	Ranges of Distance from Track (feet)	Range of Total Average Daily L _{dn} (dBA)	Range of Average L _{eq} (1 hour) (dBA)
Western Section				
Los Angeles (Union Station-Soto ^a)	Wayside noise from train passbys	50 – 150	63.4 – 70.5	58.4 – 65.5
Los Angeles (Union Station-Soto ^a)	Horn noise levels within 0.25 mile of grade crossings	50 – 150	68.7 – 81.0	69.8 – 77.0
Los Angeles (Soto ^a -Fullerton)	Wayside noise from train passbys	50 - 150	70.6 – 77.8	64.6 – 71.8
Los Angeles (Soto ^a -Fullerton)	Horn noise levels within 0.25 mile of grade crossings	50 – 150	74.1 – 83.4	71.4 – 78.6
Fullerton-Atwood	Wayside noise from train passbys	50 – 150	70.2 – 77.4	63.8 – 71.0
Fullerton-Atwood	Horn noise levels within 0.25 mile of grade crossings	50 – 150	73.1 – 81.3	67.8 – 75.0
Atwood-Riverside	Wayside noise from train passbys	50 – 150	70.7 – 77.8	64.3 – 71.5
Atwood-Riverside	Horn noise levels within 0.25 mile of grade crossings	50 – 150	73.8 – 82.4	69.6 – 76.8
Riverside-Highgrove	Wayside noise from train passbys	50 – 150	72.4 – 79.6	66.2 – 73.3
Riverside-Highgrove	Horn noise levels within 0.25 mile of grade crossings	50 – 150	75.4 – 83.5	70.5 – 77.6
Highgrove-Colton	Wayside noise from train passbys	50 – 150	72.4 – 79.5	66.0 – 73.2
Highgrove-Colton	Horn noise levels within 0.25 mile of grade crossings	50 – 150	75.3 – 82.9	69.6 – 76.8

Section	Train Noise Source	Ranges of Distance from Track (feet)	Range of Total Average Daily L _{dn} (dBA)	Range of Average L _{eq} (1 hour) (dBA)
<i>Eastern Section</i>				
Colton-Coachella	Wayside noise from train passbys	50 – 150	71.0 – 78.2	64.8 – 71.9
Colton-Coachella	Horn noise levels within 0.25 mile of grade crossings	50 – 150	73.9 – 81.1	67.6 – 74.8

Notes:

^a Soto interlocking (Milepost 144.4) in Los Angeles

dBA=A-weighted decibel; L_{dn}=day-night average noise level; L_{eq}=equivalent sound level

In addition to rail operation noise, traffic noise from cars and trucks is a primary source of ambient noise within the Program Corridor. Many highways and local roads serve commuter and heavy trucking demands in both the Western and Eastern Section of the Program Corridor, including I-10, SR 60, and SR 91 in the Western Section and I-10, SR 60, and SR 111 in the Eastern Section.

Build Alternative Option 2 (Indio Terminus)

Existing noise sources and levels within Build Alternative Option 2 are the same as Build Alternative Option 1.

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

Existing noise sources and levels within Build Alternative Option 3 are the same as Build Alternative Option 1.

Existing Vibration Sources

At higher frequencies, ground-borne vibration can be perceived as a noise source. At sufficiently high amplitudes, the propagation of vibration waves through the ground can couple with building elements and cause them to vibrate at a frequency that is audible to the human ear. Ground-borne noise could rattle windows, walls, or other items that are coupled to building surfaces. Ground-borne vibration levels that result in ground-borne noise are often experienced as a combination of perceptible vibration and low-frequency noise.

Build Alternative Option 1 (Coachella Terminus)

Existing vibration sources in the Tier 1/Program EIS/EIR Study Area include train traffic in the Western and Eastern Sections of the Program Corridor and motor vehicle traffic on freeways and local arterial streets. Existing vibration levels were not quantified in this analysis since FTA classification of vibration events would not change under future conditions with implementation of the Build Alternative Options as described in Section 3.6.5.

Build Alternative Option 2 (Indio Terminus)

Existing vibration sources within Build Alternative Option 2 is the same as Build Alternative Option 1.

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

Existing vibration sources within Build Alternative Option 3 is the same as Build Alternative Option 1.

3.6.5 Environmental Consequences

Overview

Effects as a result of implementing the Build Alternative Options can be broadly classified into construction and operational effects. Both short-term or temporary effects and long-term or permanent noise and vibration effects would be anticipated as a result of constructing any of the Build Alternative Options.

Construction effects associated with noise and vibration are generally short term and are due to the use of construction equipment and vehicles, as well as operation of on-site materials processing and handling, such as concrete plants. The potential construction effects on noise and vibration are evaluated based on the intensity of the construction activities and the duration of construction of the Program. The longer the construction period and the more non-road construction equipment used (such as cranes, bulldozers, heavy duty trucks, and concrete batch plants), the greater the potential for construction noise and vibration effects.

Noise and vibration effects could also result from operation of any of the Build Alternative Options as the addition of two daily roundtrips would result in the increase of passenger rail trains traveling within the Program Corridor and the addition of new station facilities (e.g., new sources of mobile and stationary noise).

Site-specific sensitive land uses potentially affected by the Program would be further identified as part of the Tier 2/Project-level environmental review process. Specific types and degrees of noise and vibration impacts on sensitive receptors would not be known until further design and construction information is known.

No Build Alternative

The No Build Alternative, as described in Chapter 2, Program Alternatives, of this Tier 1/Program EIS/EIR, is used as the baseline for comparison. The No Build Alternative would not implement the Program associated with this service-level evaluation. Under the No Build Alternative, ambient noise and vibration levels from existing train operations and local traffic would continue. No Program-related construction or increase in service would occur; however, freight and intercity train trips would increase in frequency due to regional growth and demand from other projects. Under the No Build Alternative, ambient noise and vibration levels from existing train operations and local traffic would continue. While no Program-related construction or increase in service would occur, rail noise is anticipated to increase within the Program Corridor.

The No Build Alternative assumes completion of those reasonably foreseeable transportation, development, and infrastructure projects that are already in progress or are programmed. These projects would result in an increase in freight service, as well as an increase in passenger rail services in the Program Corridor.

In addition, an increase in traffic is anticipated with the No Build Alternative because more cars would be on the roadways compared with what would occur with implementation of the Program. These increases in traffic could result in localized increases in ambient noise levels along local roadways.

Build Alternative Options 1, 2, and 3

Rail and Station Noise Effects

CONSTRUCTION

Western Section. The Build Alternative Options would not require construction of additional rail or station infrastructure in the Western Section of the Program Corridor because the existing railroad and stations from LAUS to Colton would be used. When compared with the No Build Alternative, short-term/temporary effects associated with noise-level increases would be negligible because no additional construction activities are planned within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Construction activities required for infrastructure improvements (such as sidings, additional main line track, wayside signals, drainage, grade-separation structures) and station facilities would result in short-term increases in noise in, and around, the construction site. Noise during construction would be generated by construction equipment and vehicles during soil disturbance, earthwork, and other construction activities. The noise that could be generated would vary depending on the length of the construction period, specific construction activity (e.g., grading, paving, pile driving), types of equipment, and number of personnel. Potential worst-case equipment noise levels from construction of rail infrastructure improvements were evaluated by combining the noise levels of up to three of the loudest pieces of equipment that would most likely operate at the same time during a given phase of construction. This worst-case scenario assumes a paving project, which would include a paver, a dump truck, and an excavator, with an overall noise level of 88 dBA L_{eq} (8 hours) at 50 feet. However, estimated overall noise levels (not including impact construction equipment like a pile driver or blasting) can range from 88 dBA L_{eq} at 50 feet to 62 dBA L_{eq} at 1,000 feet ground. The noise calculations conducted for construction equipment is described in further detail in Appendix F of this Tier 1/Program EIS/EIR.

Although construction equipment may operate in many different areas as rail infrastructure improvements and station facilities are constructed, the highest noise levels are expected at those sites where the duration and intensity of construction activities would be greatest. Construction may occur within areas containing sensitive noise receptors and could potentially generate noise that would affect these sensitive noise receptors.

Potential noise levels from construction activities are predicted to exceed the FTA daytime construction noise criterion at nearby residences, lodging facilities, and institutional uses within 120 feet of construction areas. The FTA nighttime noise criterion could be exceeded at residences and lodging facilities up to 400 feet from construction areas. The need for construction during nighttime hours has not been specified and is, therefore, assumed to occur as a worst-case scenario. Impact pile drivers produce a maximum noise level of up to 101 dBA at 50 feet. If impact pile driving is used, the FTA daytime criterion may be exceeded up to 275 feet, and the FTA nighttime criterion may be exceeded at up to 850 feet. The need for pile-driving during construction has not been specified and is, therefore, assumed to occur as a worst-case scenario.

Construction at a given location would be intermittent and short term for the noise-sensitive receptors adjacent to construction sites. Construction noise would cease once the rail infrastructure improvement or station facility is complete. Site-specific noise impacts on sensitive receptors and mitigation measures would be considered during Tier 2/Project-level analysis.

When compared with the No Build Alternative, Build Alternative Option 1 could have a substantial construction noise effect on sensitive receptors 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 substantial 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 substantial when compared with the No Build Alternative.

OPERATION

Western Section. Noise-level calculations for train operations were modeled as part of this Tier 1/Program service-level evaluation assuming the addition of four daytime (7:00 a.m. to 10:00 p.m.) one-way intercity diesel-powered passenger train trips (two daily round-trips) per day within the Western Section of the Program Corridor. Current traffic volumes on the Western Section range from 43 to 86 average daily trains per segment, where a substantial number of freight, passenger, and commuter trains operate. The addition of four daily intercity passenger trips would result in a total of

90 one-way trips per day on the Los Angeles to Fullerton segment, which carries the highest volume of trains.

Based on the noise modeling conducted, wayside (engine and wheel/rail noise) and warning horn noise (at the at-grade crossings) that could be generated by Program operation would be lower than existing average daily rail noise that occur at Category 2 (residential/lodging) and Category 3 (institutional) land uses. The noise calculations conducted for Category 2 and Category 3 land uses within the Western Section of the Program is described in further detail in Appendix F of this Tier 1/Program EIS/EIR.

Operation of the enhanced passenger rail system within the Western Section of the Program Corridor under the Build Alternative Options is not be anticipated to result in changes associated with operational noise from passenger rail trains or the continuation of operational activities at existing rail stations. Operational noise effects associated with the Western Section of the Program Corridor under Build Alternative Option 1 would be negligible when compared with the No Build Alternative. When compared with Build Alternative Option 1, Build Alternative Options 2 and 3 would have the same magnitude of effect and be considered negligible when compared with the No Build Alternative.

Eastern Section. Noise-level calculations for train operations were modeled as part of this Tier 1/Program service-level evaluation assuming the addition of four daytime (7:00 a.m. to 10:00 p.m.) one-way intercity diesel-powered passenger train trips (two daily round-trips) per day within the Eastern Section of the Program Corridor. Current rail traffic volumes on the Eastern Section average 43 one-way trains per day. The addition of 4 daily intercity passenger trips would result in a total of 47 one-way trips per day on the Eastern Section of the Program Corridor.

Based on the noise modeling conducted, wayside (engine and wheel/rail noise) and warning horn noise (at the at-grade crossings) that could be generated by Program operation would be lower than existing average daily rail noise that occurs at Category 2 (residential/lodging) and Category 3 (institutional) land uses. The noise calculations conducted for Category 2 and Category 3 land uses within the Eastern Section of the Program Corridor are described in further detail in Appendix F of this Tier 1/Program EIS/EIR.

Operation of the enhanced passenger rail system within the Eastern Section of the Program Corridor under the Build Alternative Options is not anticipated to result in changes associated with operational noise from passenger rail trains. However, it is currently unknown if the operation of the enhanced passenger rail system would require rail infrastructure improvements that would change the existing noise environment (e.g., the provision of grade separations, bridges, or sidings).

Depending on the configuration of, and amenities available at, rail station facilities, the type of operational noise varies. Station platform noise sources generally include a public announcement

system and chiming sounds from ticket vending machines. Announcement systems are typically designed to adjust volume levels automatically to a few dBs above ambient noise. Operation noise associated with these sources would occur for brief periods and would not likely result in an exceedance of FTA or local standards. However, the operation of new rail station facilities could also result in new sources of mobile (e.g., vehicles accessing the station) and stationary noise (e.g., building heating, ventilation, and air conditioning systems and truck deliveries [if there are commercial uses included as part of the station facility]), which may result in exceedances of FTA or local standards on adjacent sensitive noise receptors.

Design specifics and locations of the rail infrastructure improvements and station facilities are not known at this time, so the operational noise that could be generated and potential sensitive receptors that could be affected during operational activities cannot be quantified at the Tier 1/Program-level evaluation. Once detailed information for the site-specific rail infrastructure improvement or station facility is available, a quantitative estimate of the noise levels during operation and impacts on sensitive receptors evaluated during the Tier 2/Project-level analysis would be conducted.

When compared with the No Build Alternative, operational noise effects could be moderate within the Program Corridor under Build Alternative Option 1. When compared with Build Alternative Option 1, Build Alternative Option 2 would have the same magnitude of effects 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.

Traffic Noise Effects

CONSTRUCTION

Western Section. The Build Alternative Options would not require construction of additional rail or station infrastructure in the Western Section because the existing railroad infrastructure and stations from LAUS to Colton would be used. When compared with the No Build Alternative, short-term/temporary traffic noise effects would be negligible because no additional construction activities are planned within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Construction of rail infrastructure improvements, such as sidings, additional main line track, wayside signals, drainage, grade-separation structures, and stations would generate construction traffic, which could contribute to localized increases in roadway noise levels. However, these increases in roadway noise generated by construction traffic would occur for brief periods and

would not likely result in an exceedance of FTA standards or local standards. When compared with the No Build Alternative, short-term/temporary noise effects related to roadways and vehicular traffic would be negligible within the Eastern Section under Build Alternative Option 1. When compared with Build Alternative Option 1, Build Alternative Option 2 would have the same magnitude of effects and be 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. During operation of the Program within the Western Section of the Program Corridor, access streets around each existing station would likely be affected because of additional automobile traffic generated by patrons accessing and departing from each station. However, these existing stations are located in urbanized areas that already experience moderate to high noise levels. The additional traffic trips that could be generated around the existing stations are not anticipated to result in a perceptible change in existing noise levels on local roadways. When compared with the No Build Alternative, traffic noise effects related to roadways and vehicular traffic would be negligible within the Western Section under Build Alternative Option 1. When compared with Build Alternative Option 1, Build Alternative Options 2 and 3 would have the same magnitude of effects and be considered negligible when compared with the No Build Alternative.

Eastern Section. New train ridership resulting from implementation of any of the Build Alternative Options is anticipated to affect the number of automobile trips within the Eastern Section of the Program Corridor. For the proposed stations within the Eastern Section of the Program Corridor, catchment areas have been identified, but no specific sites have been selected. Therefore, it is not known at the Tier 1/Program evaluation phase which local streets may be impacted by operation of station facilities. It is possible that the addition of automobile trips to the existing roadway network could result in increases of noise levels along these local roadways that would require mitigation. The location of Type I roadway projects (if any) would require an analysis of traffic noise based on procedures described in the Caltrans Protocol, on a case by case basis. A detailed assessment of operational traffic impacts would be conducted during the Tier 2/Project-level analysis once site-specific rail infrastructure or station facility details are known.

When compared with the No Build Alternative, traffic noise effects related to roadways and vehicular traffic would be moderate within the Eastern Section under Build Alternative Option 1. When compared with Build Alternative Option 1, Build Alternative Option 2 would have the same magnitude of effects 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.

Vibration Effects

CONSTRUCTION

Western Section. The Build Alternative Options would not require construction of additional rail or station infrastructure in the Western Section of the Program Corridor because the existing railroad and stations from LAUS to Colton would be used. When compared with the No Build Alternative, short-term/temporary vibration effects would be negligible because no additional construction activities are planned within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Construction activities required for infrastructure improvements (such as sidings, additional main line track, wayside signals, drainage, grade-separation structures) and station facilities would result in short-term increases in vibration levels in, and around, the construction site. Vibration during construction would be generated by the use of construction equipment and vehicles during soil disturbance, earthwork, and other construction activities. The vibration that could be generated would vary depending on the length of the construction period, specific construction activity (e.g., grading, paving, pile driving), types of equipment, and number of personnel. Vibration levels that would be generated from various construction equipment (e.g., bulldozers, vibratory rollers, and pile drivers) at a range of distances were modeled as part of this Tier 1/Program service-level evaluation and are provided in Appendix F of this Tier 1/Program EIS/EIR.

There are two types of construction vibration effects to consider during construction: human annoyance and building damage. Human annoyance occurs when construction vibration rises significantly for extended periods. Fragile buildings, specifically historic structures, are generally more susceptible to damage from ground vibration than newer, less fragile buildings. The potential for moderate or substantial vibration effects during construction increases where construction activities are located adjacent to sensitive land uses.

Based on the vibration modeling conducted for this Tier 1/Program service-level evaluation, ground-borne vibration from construction activities may periodically exceed the FTA vibration criterion at residences and lodging facilities (Category 2 land uses) within 110 feet of construction areas when using typical heavy equipment. If impact equipment, such as a pile driver, is used, the FTA vibration criterion would be exceeded at up to 230 feet. Although vibration from construction equipment may be intermittently perceptible at sensitive-receptor locations, the potential for

substantial annoyance of occupants at nearby building structures is unlikely and would occur only during short intervals when equipment is operated near structures.

Depending on where construction would occur within the Eastern Section of the Program Corridor, construction activities have the potential to cause vibration-induced damage to fragile or extremely fragile buildings. This vibration-induced damage could occur if ground-borne vibration levels exceed 0.20 PPV for non-engineered timber and masonry buildings and 0.12 PPV for buildings that are extremely susceptible to vibration damage.

Based on the vibration modeling conducted for this Tier 1/Program service-level evaluation, vibration levels from operation of a vibratory roller would exceed the 0.200-PPV threshold for fragile buildings 25 feet from the building (0.210 PPV) and the 0.120-PPV threshold for extremely fragile buildings 40 feet from the building (0.125 PPV). Vibration from operation of a pile driver would exceed the 0.20-PPV threshold for fragile buildings 70 feet from the building (0.207 PPV) and the 0.120-PPV threshold for extremely fragile buildings 110 feet (0.126 PPV) from the building.

Construction of any of the Build Alternative Options would have the potential to cause temporary vibration effects. However, potential vibration effects from each construction project would be short term, occurring at a location only while construction work is in progress. In general, the degree of adverse construction effects is proportional to the length of new rail proposed to be constructed, number of grade separations, number and size of new facilities, proximity of the improvements and facilities to sensitive receptors, and the duration of construction at each site. Design specifics and locations of the rail infrastructure improvements and station facilities are not known at this time, so the vibration levels that could be generated and potential sensitive receptors that could be affected 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 detailed estimate of the vibration levels that could be generated during construction would be conducted and impacts on sensitive receptors and resources would be evaluated during the Tier 2/Project-level analysis.

When compared with the No Build Alternative, vibration effects could be moderate within the Program Corridor under Build Alternative Option 1. When compared with Build Alternative Option 1, Build Alternative Option 2 would have the same magnitude of effects 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 and Eastern Section. As summarized in Table 3.6-2, the FTA classification of vibration events under existing conditions within the Program Corridor is frequent. Operation of the Program would increase the number of average daily rail trips within the Western Section from a maximum of 86 rail trips per day to 90 rail trips per day and an increase from 43 rail trips per day to 47 rail trips per day within the Eastern Section of the Program Corridor. These increases in average daily rail trips would not result in a change in classification from frequent events (e.g., more than 70 events per day). Train speeds are not projected to increase under future conditions within the Program Corridor.

If train traffic with implementation of the Build Alternative Options would exceed the vibration criteria for frequent events and increase vibration levels by 3 VdB or more, this would result in a significant vibration impact. However, train activity with implementation of the Program would involve commuter trains, which produce vibration levels that are more than 10 dB below freight trains in terms of VdB root-mean-square values. When compared with the No Build Alternative, vibration effects would be negligible within the Western and Eastern Sections of the Program Corridor under Build Alternative Option 1. When compared with Build Alternative Option 1, Build Alternative Options 2 and 3 would have the same magnitude of effects and be considered negligible when compared with the No Build Alternative.

3.6.6 NEPA Summary of Potential Effects

Table 3.6-6 and Table 3.6-7 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 relative magnitude of potential effects associated with noise and vibration under each of the Build Alternative Options. Specific mitigation measures to reduce effects would be identified during the Tier 2/Project-level environmental process.

Table 3.6-6. NEPA Summary of Noise Effects

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

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

Notes:

- ^a The No Build Alternative, as identified, includes existing and potential expansion of roadway, passenger rail, and air travel facilities within the Tier 1/Program EIS/EIR Study Area; however, for the service-level evaluation, identifying levels of effect from potential expansion of those facilities is speculative and would be dependent on Tier 2/Project-specific analysis.

EIS/EIR=environmental impact statement/environmental impact report; NEPA=National Environmental Policy Act

Table 3.6-7. NEPA Summary of Vibration Effects

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

Notes:

- ^a The No Build Alternative, as identified, includes existing and potential expansion of roadway, passenger rail, and air travel facilities within the Tier 1/Program EIS/EIR Study Area; however, for the service-level evaluation, identifying levels of effect from potential expansion of those facilities is speculative and would be dependent on Tier 2/Project-specific analysis.

EIS/EIR=environmental impact statement/environmental impact report; NEPA=National Environmental Policy Act

3.6.7 CEQA Summary of Potential Impacts

Based on the information provided in Section 3.6.4 and 3.6.5, and considering the CEQA Guidelines Appendix G Checklist questions for noise and vibration, the Build Alternative Options would have potentially significant impacts on noise and vibration when reviewed on a Program-wide basis. Placing the rail infrastructure improvements and new station facilities largely within, or along, the existing ROW reduces the potential for significant noise and vibration impacts. However, because the sites have not been selected, some adjacent noise-sensitive uses may be significantly impacted. At the Tier/Program analysis level, it is not possible to know the location, extent, and particular characteristics of impacts on these areas. Proposed programmatic mitigation strategies discussed in Section 3.6.8 would be applied to reduce potential impacts.

Table 3.6-8 summarizes the CEQA significance conclusions for the Build Alternative Options; the proposed programmatic mitigation strategies that could be applied to minimize, reduce, or avoid the potential impacts; and the significance determination after mitigation strategies are applied. The identification and implementation of additional site-specific mitigation measures necessary for Project implementation would occur as part of the Tier 2/Project-level analysis.

Table 3.6-8. CEQA Summary of Impacts for Noise and Vibration

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<i>Would the Program result in generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?</i>		
<i>Construction</i>		
Western Section – No Impact. No construction are anticipated at the Tier 1/Program EIS/EIR evaluation level impacts 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. Potentially significant impacts may occur at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3. Potential impacts related to a substantial, temporary increase in ambient noise levels are dependent on the location of rail infrastructure improvements, station facilities, and the type of construction activities required. Construction at a given location would be intermittent and short term for the noise-sensitive receptors adjacent to construction sites, with construction noise ceasing once construction of a project is completed. The Tier 2/Project-level analysis would identify and evaluate impacts associated with site-specific construction noise on adjacent noise-sensitive receptors.	NOI-1 NOI-2 LU-3	Potentially Significant. NOI-1, NOI-2, and LU-3 would minimize, reduce, or avoid potential impacts associated with construction noise through design and further analysis during the Tier 2/Project-level environmental process. However, impacts may remain significant and unavoidable as further analysis may determine that there is a temporary construction noise that cannot be mitigated between land uses.
<i>Operation</i>		
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 a change in the existing noise environment within the existing rail corridor. Therefore, no operational impacts are 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
<p>Eastern Section – Potentially Significant. Potentially significant impacts may occur at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3. A permanent increase in ambient noise around new rail infrastructure improvements and station facilities could occur. This increase in ambient noise may result in potentially significant impacts on adjacent noise-sensitive land uses depending on the location of sensitive receptors. The Tier 2/Project-level analysis would identify and evaluate impacts associated with noise levels increases on adjacent land uses.</p>	<p>NOI-2 LU-3</p>	<p>Potentially Significant. NOI-2 and LU-3 would minimize, reduce, or avoid potential impacts associated with operational noise through design and further analysis during the Tier 2/Project-level environmental process. However, impacts may remain significant and unavoidable as further analysis may determine that there is a conflict that cannot be mitigated between land uses.</p>
<p><i>Would the Program result in generation of excessive ground-borne vibration or ground-borne noise levels?</i></p>		
<p><i>Construction</i></p>		
<p>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.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – Potentially Significant. Potentially significant impacts may occur at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3. Potential impacts related to excessive ground-borne vibration or noise levels are dependent on the location of rail infrastructure improvements, station facilities, and the type of construction activities. Vibration from construction equipment may be intermittently perceptible at sensitive-receptor locations. The Tier 2/Project-level analysis would identify and evaluate impacts associated with excessive ground-borne vibration or noise levels.</p>	<p>NOI-2</p>	<p>Less than Significant. NOI-2 would minimize, reduce, or avoid potential impacts from excessive ground-borne vibration or noise through design and further analysis during the Tier 2/Project-level environmental process.</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Operation		
<p>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 a change in the existing noise environment within the existing rail corridor. Therefore, no operational impacts under Build Alternative Option 1, 2, or 3 are anticipated at the Tier 1/Program EIS/EIR evaluation level.</p>	Not applicable	Not applicable
<p>Eastern Section – Potentially Significant. Potentially significant impacts may occur at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3. Potential impacts related to excessive ground-borne vibration or noise levels are dependent on the location of rail infrastructure improvements, station facilities, and the type of operational activities. Operation of station facilities or new rail infrastructure improvements may result in a new source of vibration within a particular site. The Tier 2/Project-level analysis would identify and evaluate impacts associated with from excessive ground-borne vibration or noise levels during operation.</p>	NOI-2	<p>Less than Significant. NOI-2 would minimize, reduce, or avoid potential impacts from excessive ground-borne vibration or noise through design and further analysis during the Tier 2/Project-level environmental process.</p>
<p><i>Would the Program be located within the vicinity of a private airstrip or an airport land use plan area or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the Program area to excessive noise levels?</i></p>		
Construction		
<p>Western Section – No Impact. Although the Western Section of the Program Corridor contains areas that are located within an airport land use plan, 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.</p>	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Potentially Significant. Potentially significant impacts may occur at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3. Potential impacts associated with consistency with airport land use compatibility plans depend on the location of rail infrastructure improvements, station facilities, and type of construction activities, which are currently unknown. Portions the Eastern Section of the Program Corridor are located within the Banning Municipal Airport, Bermuda Dunes Executive Airport, Palm Springs International Airport, and Jacqueline Cochran Regional Airport Influence Areas. A detailed analysis of the airport land use compatibility plans for these airports cannot be considered at the Tier 1/Program EIS/EIR level as the locations of infrastructure and station facilities is unknown. The Tier 2/Project-level analysis would identify conflicts with these airport land use compatibility plans.</p>	LU-3	<p>Less than Significant. LU-3 would minimize, reduce, or avoid potential impacts from conflicts with applicable airport land use consistency plans and policies through design and further analysis.</p>
Operation		
<p>Western Section – Less Than Significant. The Western Section of the Program Corridor contains areas that are located within an airport land use plan. However, 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 safety hazards or excessive noise for people residing or working in the area. A less than significant impact is anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Potentially Significant. Potentially significant impacts may occur at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3. Potential operational impacts associated with consistency with airport land use compatibility plans depend on the location of rail infrastructure improvements and station facilities, which are currently unknown. Portions the Eastern Section of the Program Corridor are located within the Banning Municipal Airport, Bermuda Dunes Executive Airport, Palm Springs International Airport, and Jacqueline Cochran Regional Airport Influence Areas. A detailed analysis of the airport land use compatibility plans for these airports cannot be considered at the Tier 1/Program EIS/EIR level, as the locations of infrastructure and station facilities is unknown. The Tier 2/Project-level analysis would identify conflicts with these airport land use compatibility plans.</p>	<p>LU-3</p>	<p>Less than Significant. LU-3 would minimize, reduce, or avoid potential impacts from conflicts with applicable airport land use consistency plans and policies through design and further analysis.</p>

Notes:

EIS/EIR=environmental impact statement/environmental impact report

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3.6.8 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. Potential mitigation measures and design features that would avoid or minimize noise and vibration effects would be developed in consultation with the appropriate agencies with jurisdiction. Proposed programmatic mitigation strategies include, but are not limited to the following:

Mitigation Strategy NOI-1: During Tier 2/Project-level analysis, a site-specific construction noise management plan shall be prepared for the specific rail infrastructure or station facility proposed. The construction noise management plan shall include, but not be limited to, the following:

- A detailed construction schedule correlating to areas or zones of on-site Project construction activity(ies) and the anticipated equipment types and quantities involved. Information will include expected hours of actual operation per day for each type of equipment per phase and indication of anticipated concurrent construction activities on site.
- Identification of construction noise reduction methods such as shutting off idling equipment, construction of a temporary noise barrier, maximizing the distance between construction equipment staging areas and adjacent sensitive land use receptors.
- Identification of construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances to allow surrounding property owners to contact the job superintendent if necessary. In the event the municipality with jurisdiction receives a complaint, the construction noise management plan shall include guidance to ensure the appropriate corrective actions are implemented and a report of the action is provided to the reporting party. Appropriate corrective actions may include stricter enforcement of construction schedule, re-location of stationary equipment further from adjacent noise-sensitive receptors, reduction in the number of equipment working simultaneously in proximity to the sensitive receptor, erection of temporary noise barriers, or a combination of the above.

Mitigation Strategy NOI-2: During Tier 2/Project-level analysis, a site-specific noise and vibration assessment shall be prepared for the specific rail infrastructure or station facility proposed. The site-specific noise and vibration assessment shall include, but not be limited to, the following:

- Identification of adjacent noise sensitive land uses that would be impacted by construction and operation activities associated with the specific rail infrastructure or station facility.

- Identification of construction equipment required to be within 50 feet of existing structures. If construction equipment is required within 50 feet, the assessment will demonstrate that the human annoyance threshold of 78 velocity in decibels (0.032 inches per second peak particle velocity) and structural damage thresholds of 0.2 inches per second peak particle velocity for nonengineered timber and masonry buildings and 0.12 inches per second peak particle velocity for historic-age buildings that are extremely susceptible to vibration damage is achieved.
- Identification of existing noise levels at the nearest noise sensitive land uses.
- Identification of any on-site generated noise sources, including generators, mechanical equipment, and trucks and predicted noise levels at property lines from all identified equipment.
- Recommended mitigation to be implemented (e.g., enclosures, barriers, site orientation), to ensure compliance with the local jurisdiction's noise regulations or ordinances. Noise reduction measures shall include building noise-attenuating walls, reducing noise at the source by requiring quieter machinery or limiting the hours of operation, or other attenuation measures. Exact noise mitigation measures and their effectiveness shall be determined by the site-specific noise analyses.

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 resources 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.

3.7 Jurisdictional Waters and Wetland Resources

3.7.1 Introduction

This section identifies potential jurisdictional waters and wetlands within the Tier 1/Program EIS/EIR Study Area and evaluates the effects of the No Build Alternative and Build Alternative Options on these resources. Wetlands provide wildlife habitat, but they can be further classified in terms of their level of wildlife/biological habitat and hydrologic and water quality function. Wetlands are defined by soil characteristics, hydrology, and dominance of vegetation adapted to wet environments.

This service-level evaluation also focuses on wetlands and aquatic habitats associated with waters of the U.S. and waters of the state. Waters of the U.S. are defined in the Clean Water Act (CWA) and include waters such as those used in interstate or foreign commerce; interstate waters including wetlands; interstate waters such as lakes, rivers, and streams; impoundments of waters defined as waters of the U.S.; tributaries to the previously listed waters; and wetlands adjacent to the previously listed waters. Wetlands fed by or that feed into waters of the U.S. are considered jurisdictional waters and are protected under Section 404 of the CWA. Waters of the U.S. are also summarized in Section 3.9, Floodplains, Hydrology, and Water Quality.

Information contained in this section is summarized from the *Biological and Wetland Resources Technical Memorandum* (Appendix G of this Tier 1/Program EIS/EIR).

3.7.2 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 jurisdictional waters and wetlands 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

Clean Water Act

The CWA, as amended, serves as the primary federal law protecting the quality of the nation's surface waters, including wetlands. The CWA prohibits any discharge of pollutants into the nation's waters unless specifically authorized by a permit. The CWA (33 USC Section 1251 et seq.) defines waters of the U.S. as follows:

- All waters that are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide
- All interstate waters, including interstate wetlands
- All other waters, such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce
- All impoundments of waters otherwise defined as waters of the U.S.
- Tributaries to the foregoing types of waters
- Wetlands adjacent to the foregoing waters (33 CFR Part 328.3 – the term adjacent means bordering, contiguous, or neighboring)

The applicable sections of the CWA are further discussed below:

- Section 303 identifies and sets pollutant standards (total maximum daily load [TMDL]) for impaired waterbodies. TMDLs are the maximum amount of a pollutant that can be present in the waterbody and establishes restrictions for discharges to the waterbody.
- Under Section 401, activities that may result in a discharge into waters of the U.S. must obtain certification from the state in which the discharge would originate or from the interstate water pollution control agency with jurisdiction over affected waters. Project sponsors must obtain a 401 Water Quality Certification from the State Water Resources Control Board (SWRCB).
- Under Section 402, discharges, including, but not limited to, construction-related stormwater discharges to surface waters are regulated through the National Pollutant Discharge Elimination System (NPDES) program. Project sponsors must obtain an NPDES permit from the SWRCB.

- Under Section 404, the United States Army Corps of Engineers (USACE) and U.S. EPA regulate the discharge of dredged and fill materials into the waters of the U.S., including wetlands. Project sponsors must obtain a permit from USACE for discharges of dredged or fill materials into jurisdictional aquatic resources.

Executive Order 11990, Protection of Wetlands

EO 11990 states that federal agencies should ensure that their actions “minimize the destruction, loss or degradation of wetlands and to preserve and to enhance the natural and beneficial values of wetlands” in carrying out their responsibilities.

Presidential Wetland Policy, 1993; Reaffirmation of the Presidential Wetland Policy, 1995

The premise of this policy is for an improved federal wetlands regulatory program: “a goal of no net loss of the Nation’s remaining wetlands and increasing the quality and quantity of the Nation’s wetlands.”

United States Department of Transportation Order 5660.1A, Order on Preservation of the Nation's Wetlands

USDOT Order 5660.1A requires agencies within USDOT to assess their effects on wetlands and associated wildlife and directs them to evaluate alternatives and measures that avoid and minimize effects on wetlands.

State

Section 1600 et seq. (Lake and Streambed Alteration)

Section 1600 et seq. requires notifying the California Department of Fish and Wildlife (CDFW) prior to any project activity that might (1) substantially divert or obstruct the natural flow of any river, stream, or lake; (2) substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or (3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

If after this notification CDFW determines that the activity may substantially affect fish and wildlife resources, a Lake or Streambed Alteration Agreement needs to be obtained.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act provides authority for the SWRCB and Regional Water Quality Control Board (RWQCB) to regulate discharges to waters of the state, including wetlands.

Waters of the state include all waters of the U.S. and any other waters within the state, regardless of their federal jurisdiction. It also provides for implementation of portions of the CWA by the SWRCB, including the development of basin plans with identified beneficial uses, issuance of Section 401 certifications, and issuance of Section 402 NPDES permits.

Impacts on waters of the state are authorized through the issuance of Waste Discharge Requirements, which require documenting compliance with state water quality standards, including watershed plans, designated beneficial uses, and the TMDL program. Issuance of a Section 401 Water Quality Certification generally incorporates the waste discharge requirements for effects on waters of the state. However, those surface resources lacking CWA jurisdiction are regulated under the waste discharge requirement process.

As defined in Division 7, Chapter 2, Section 13050(e) of the California Water Code, waters of the state include “any surface or groundwater, including saline waters, within the boundaries of the state.” In practice, waters of the state are delineated as any aquatic resource with an ordinary high water mark or that meets the description of wetlands as described above. Waters of the state include all waters of the U.S. and any isolated aquatic resources.

Regional

County General Plans

Applicable elements of the general plans for the four counties that the Build Alternative Options are located in, which include Los Angeles, Orange, Riverside, and San Bernardino, are summarized in the *Biological and Wetland Resources Technical Memorandum* (Appendix G of this Tier 1/Program EIS/EIR).

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.

3.7.3 Methods for Evaluating Environmental Effects

The methodology for the jurisdictional waters and wetlands evaluation consists of a service-level quantitative assessment, not a detailed evaluation of individual jurisdictional waters or wetlands. The quantification compares relative effects among the Build Alternative Options. A detailed Tier 2/Project-level analysis would be completed as part of future NEPA and CEQA analyses and would identify permitting requirements for construction.

The methodology for this evaluation consists of using existing data to identify jurisdictional and wetland resources that could be present within the Tier 1/Program EIS/EIR Study Area for each Build Alternative Option and evaluating the potential level of effect that each Build Alternative Option could have if constructed. Each Build Alternative Option is compared with other Build Alternative Options within the same geographical sections, as well as with the No Build Alternative.

Tier 1/Program EIS/EIR Study Area

This service-level evaluation is limited to a desktop evaluation of the data sources described in Section 3.7.3. The Tier 1/Program EIS/EIR Study Area was combined with GIS overlays to identify potential jurisdictional waters and wetlands resources that could be affected by the Program. These potential jurisdictional waters and wetland resources 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.

For this evaluation, the estimated number and acreage of potential jurisdictional waters and wetlands were compared for each of the Build Alternative Options. The detailed footprints associated with each of the Build Alternative Options considered will not be determined until additional studies are conducted in the Tier 2/Project-level analysis. Therefore, the number and acreages associated with these resources within the Tier 1/Program EIS/EIR Study Area provide an estimate of the magnitude of potential effects. The intensity of an effect as a result of the route alternatives are characterized as negligible, moderate, or substantial compared with the No Build Alternative.

In a Tier 2/Project-level analysis, impacts would be analyzed quantitatively using more detailed analytical methods, such as field surveys, mapping of jurisdictional waters and wetland resources, and use of GIS overlays of jurisdictional waters and wetland resources with the defined Project footprint to quantify impacts. In addition, a Tier 2/Project-level analysis would include a more detailed impact analysis of wetland areas, including field surveys and a jurisdictional wetland delineation to determine which areas meet U.S. EPA and USACE regulatory criteria and definition of a wetland and the types and boundaries of those wetland areas. As part of the Section 404 permitting process, additional coordination with USACE would be required to determine which wetland areas are jurisdictional or non-jurisdictional.

Data Sources

Online GIS data available from United States Fish and Wildlife Services (USFWS), CDFW, and a variety of other sources were used to identify jurisdictional waters and wetland resources with potential to occur within the Tier 1/Program EIS/EIR Study Area. Specifically, the following resources were reviewed:

- **Waters of the U.S.:** To identify waters of the U.S., the USFWS National Wetland Inventory (NWI) maps (USFWS 2018) and National Hydrography Data (United States Geological Survey [USGS 2016]) were consulted.
- **Wetlands:** For this evaluation, the USFWS NWI database (USFWS 2018) was used to identify locations of potential wetland areas within the Tier 1/Program EIS/EIR Study Area. The NWI maps are based on a classification system known as the Cowardin System, which classifies the types of ecosystems related to water resources. Typical wetland classifications in the Arid West include riverine, freshwater pond, and freshwater forested/shrub. According to the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0) (USACE 2008), three criteria must be satisfied to classify an area as a wetland: (1) hydrophytic vegetation; (2) hydric soils; and (3) wetland hydrology.

Related Resources

This evaluation incorporates data and evaluation from related resources to contribute to the assessment of effects on jurisdictional waters and wetland resources. These related resources are identified in Table 3.7-1.

Table 3.7-1. Related Resource Inputs for Jurisdictional Waters and Wetland Resources

Resource	Input for Biological Assessment
Land Use and Planning (Section 3.2)	Land uses that correlate to terrestrial or aquatic habitats, such as open space and conservation areas, were identified. Habitat conservation plans, etc. were identified.
Floodplains, Hydrology, and Water Quality (Section 3.9)	Freshwater resources that may provide aquatic habitat and/or support threatened and endangered species were identified.

3.7.4 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 topography crossed by the Program Corridor ranges from relatively flat, urban landscapes in the Western Section of the Program Corridor to hilly canyons in the central portion, and flat, low desert habitat in the east. Elevations within the Program Corridor range from 300 feet above mean sea level at the western terminus in Los Angeles up to 600 feet in Corona, 1,000 feet in Colton, and 2,600 feet in Beaumont (highest elevation), and down to 75 feet below mean sea level at the eastern terminus in Coachella (lowest elevation).

The Program Corridor traverses four major geographic regions: the Los Angeles Basin from Los Angeles to Corona, the Inland Empire from Corona to Redlands, the Peninsular Range from Redlands to Banning, and the northwestern Sonoran Desert from Banning to 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 of the Tier 1/Program EIS/EIR Study Area, although some areas occur in or adjacent to lands that are in a natural condition. Much of the Tier 1/Program EIS/EIR Study Area from Los Angeles to Redlands is urbanized, offering limited habitat value for most plant and wildlife species.

Jurisdictional Waters

Six rivers, 26 named drainages, and 1 named lake are located within the Tier 1/Program EIS/EIR Study Area. Table 3.7-2 provides a summary of these waterbodies located within each of the Build Alternative Options. In addition to the named waterbodies, numerous unnamed ephemeral washes also traverse the Tier 1/Program EIS/EIR Study Area. The descriptions and maps for waterbodies in the Tier 1/Program EIS/EIR Study Area are included as part of Appendix G of this Tier 1/Program EIS/EIR.

Build Alternative Option 1 (Coachella Terminus)

Most waterbodies located within the Western Section of Build Alternative Option 1 are characterized as creeks, washes, and channels. Rivers, lakes, and ponds are also present within the Western Section. For the Eastern Section of Build Alternative Option 1, the majority of the waterbodies are also characterized as creeks, washes, and channels. Similar to the Western Section, there are a limited number of rivers within the Eastern Section. Table 3.7-2 provides a summary of waterbodies located within the Build Alternative Options.

Table 3.7-2. Summary of Waterbodies (Build Alternative Options 1, 2, and 3)

Waterbody Type	Number of Waterbody Types within Western Section	Number of Waterbody Types within Eastern Section	Total Number of Waterbody Types
Rivers	4	3	7
Streams/creeks	7	10	17
Washes/channels	7	6	13
Lakes/ponds	1	0	1
Reservoirs	0	0	0

Source: USFWS 2018

Build Alternative Option 2 (Indio Terminus)

Waterbodies within Build Alternative Option 2 are the same as Build Alternative Option 1.

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

Waterbodies within Build Alternative Option 3 are the same as Build Alternative Option 1.

Wetlands

Figure 3.7-1 shows the NWI-mapped wetlands located within the Tier 1/Program EIS/EIR Study Area. The following section describes potential wetlands associated with waters of the U.S. and waters of the state within the Western and Eastern Sections of the Tier 1/Program EIS/EIR Study Area for each of the Build Alternative Options.

Build Alternative Option 1 (Coachella Terminus)

The largest wetland areas located within the Western Section of Build Alternative Option 1 are mainly composed of riverine wetlands. Other wetland types such as freshwater forested/shrub wetlands, freshwater pond wetlands, lake wetlands, and freshwater emergent wetlands are also present within the Western Section. For the Eastern Section of Build Alternative Option 1, the largest wetlands areas are mainly comprised of riverine wetlands. Similar to the Western Section, other wetland types such as freshwater forested/shrub wetlands, freshwater pond wetlands, and freshwater emergent wetlands are also present within the Eastern Section. Table 3.7-3 provides a summary of potential wetlands within Build Alternative Option 1.

Table 3.7-3. Summary of Wetland Types (Build Alternative Option 1)

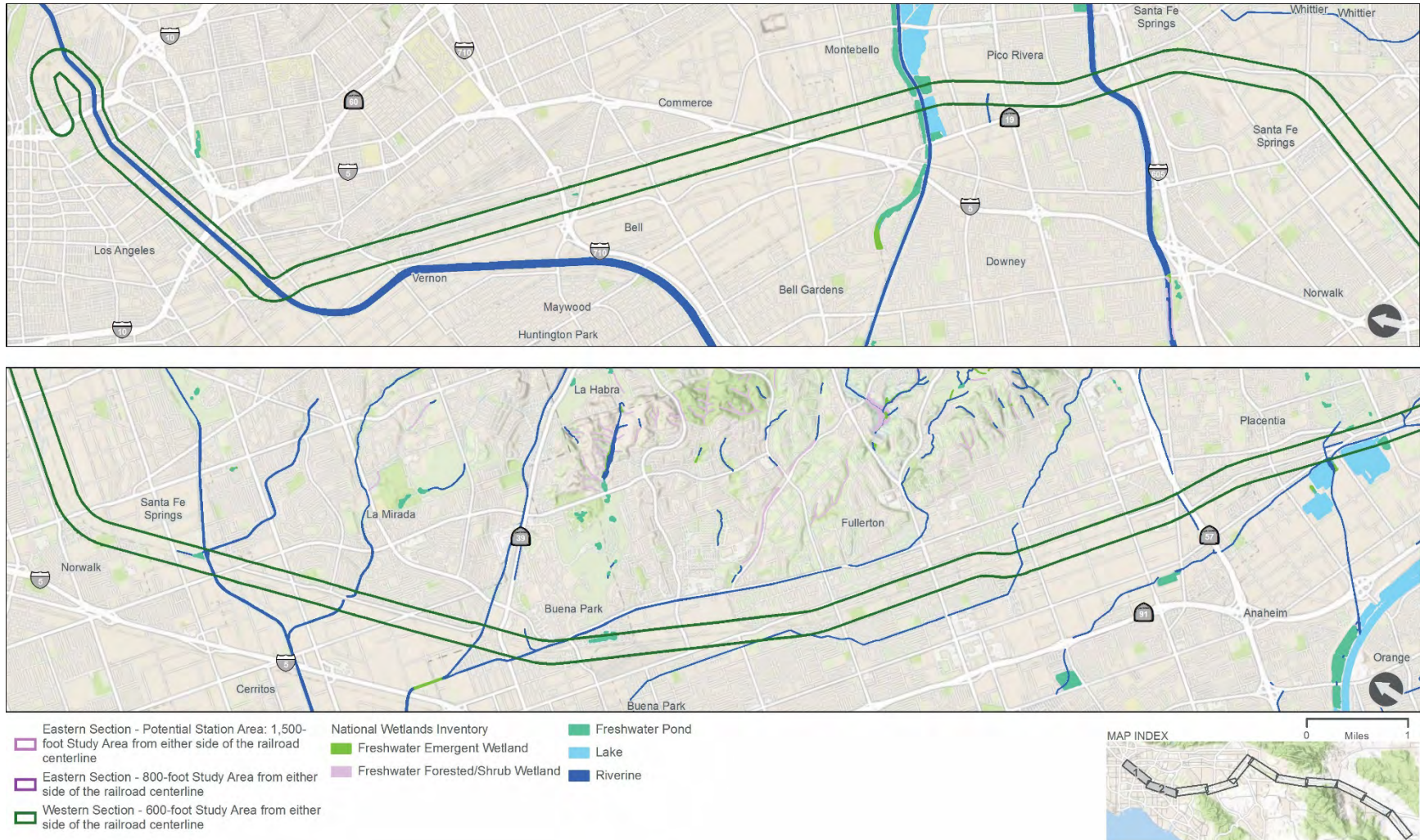
Wetland Type	Number and Area of Wetland Types within Western Section	Number and Area of Wetland Types within Eastern Section	Total Number and Area of Wetland Types
Freshwater emergent wetland	6 (2.15 acres)	5 (4.43 acres)	11 (6.58 acres)
Freshwater forested/shrub wetland	43 (31.04 acres)	8 (78.31 acres)	51 (109.35 acres)
Freshwater pond	21 (25.61 acres)	29 (67.39 acres)	50 (93.00 acres)
Lakes	7 (24.80 acres)	0 (0.00 acres)	7 (24.80 acres)
Riverine	114 (150.07 acres)	122 (347.30 acres)	236 (497.37 acres)

Source: USFWS 2018

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Figure 3.7-1. National Wetland Inventory-Mapped Wetlands within the Tier 1/Program EIS/EIR Study Area

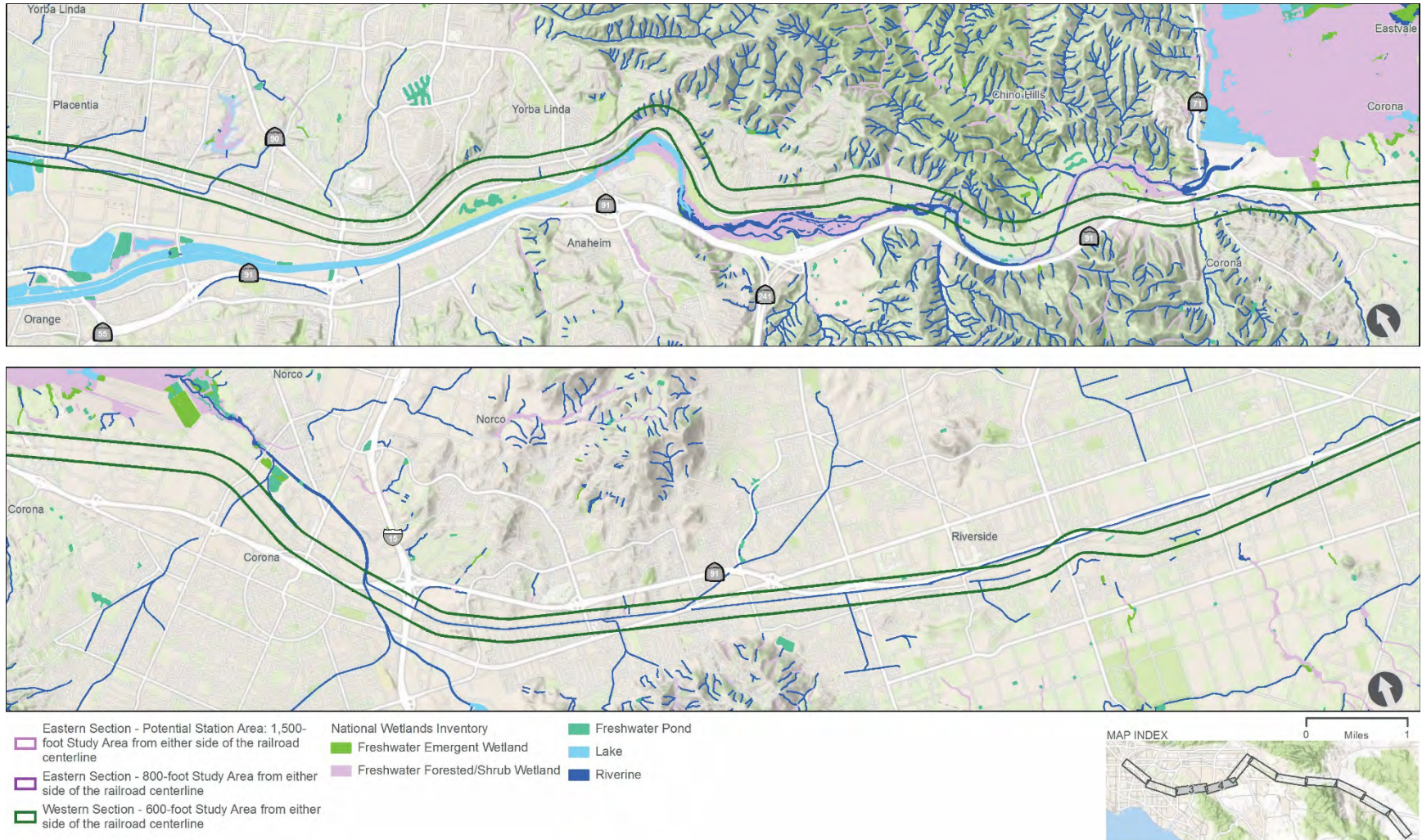
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Figure 3.7-1. National Wetland Inventory-Mapped Wetlands within the Tier 1/Program EIS/EIR Study Area

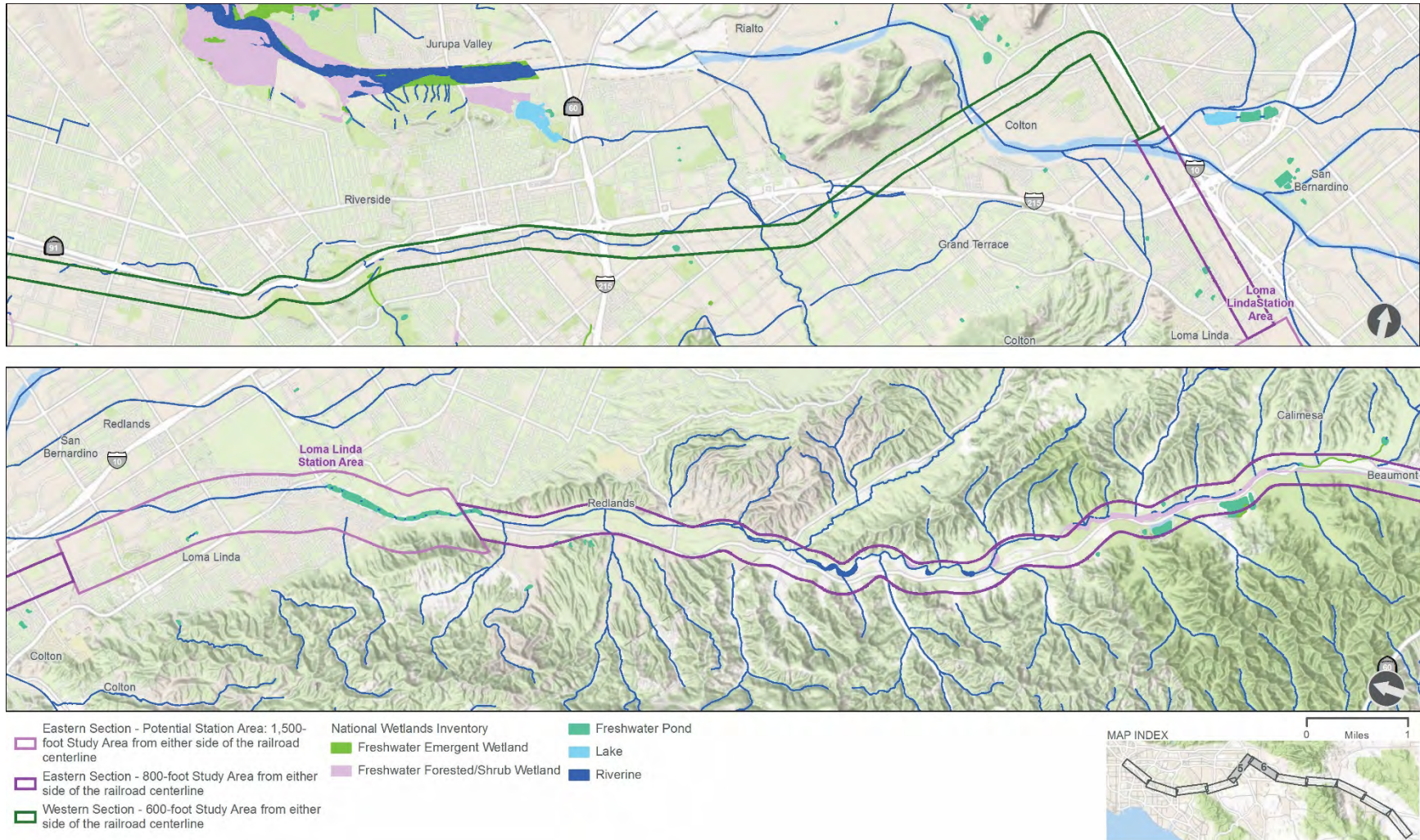
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Figure 3.7-1. National Wetland Inventory-Mapped Wetlands within the Tier 1/Program EIS/EIR Study Area

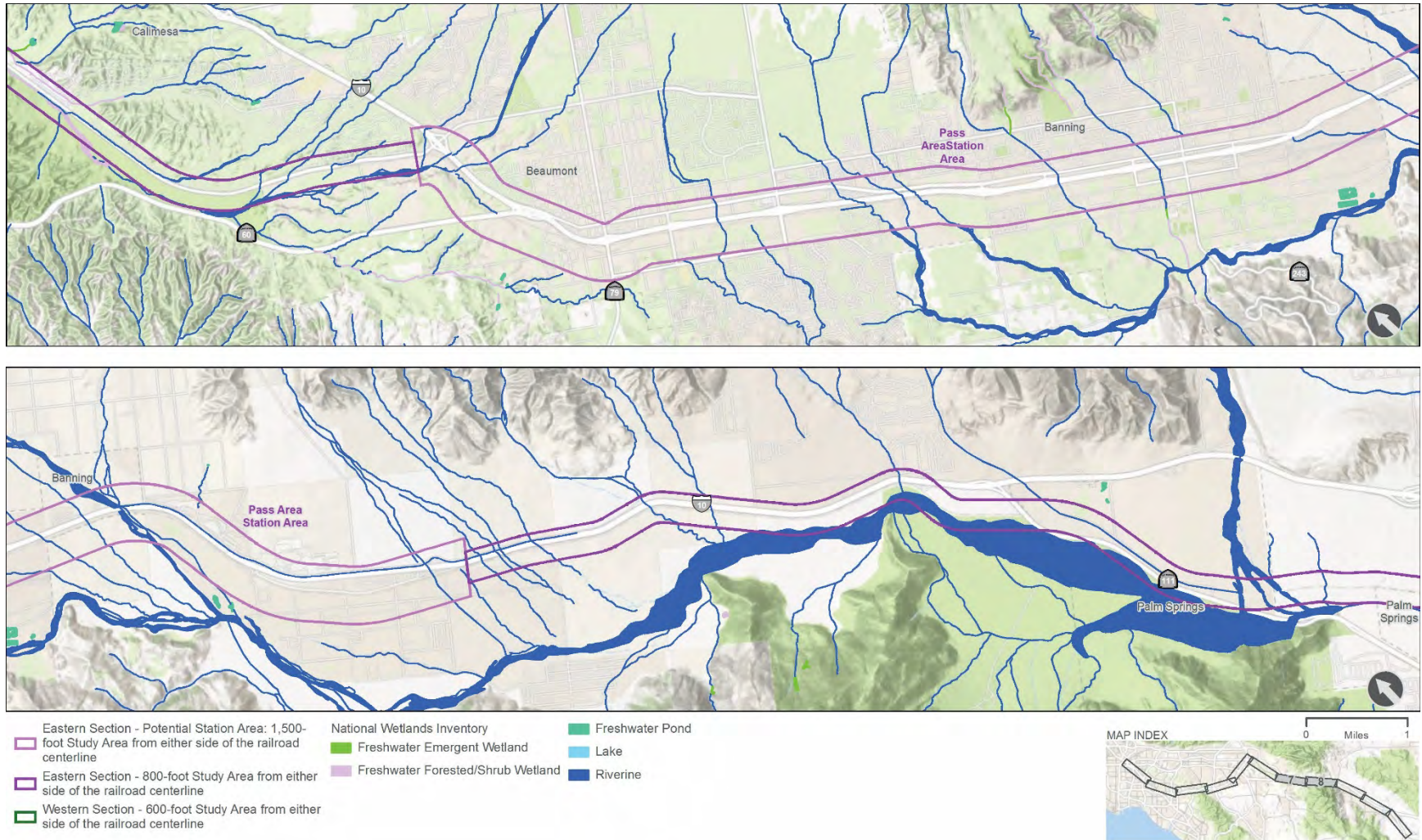
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Figure 3.7-1. National Wetland Inventory-Mapped Wetlands within the Tier 1/Program EIS/EIR Study Area

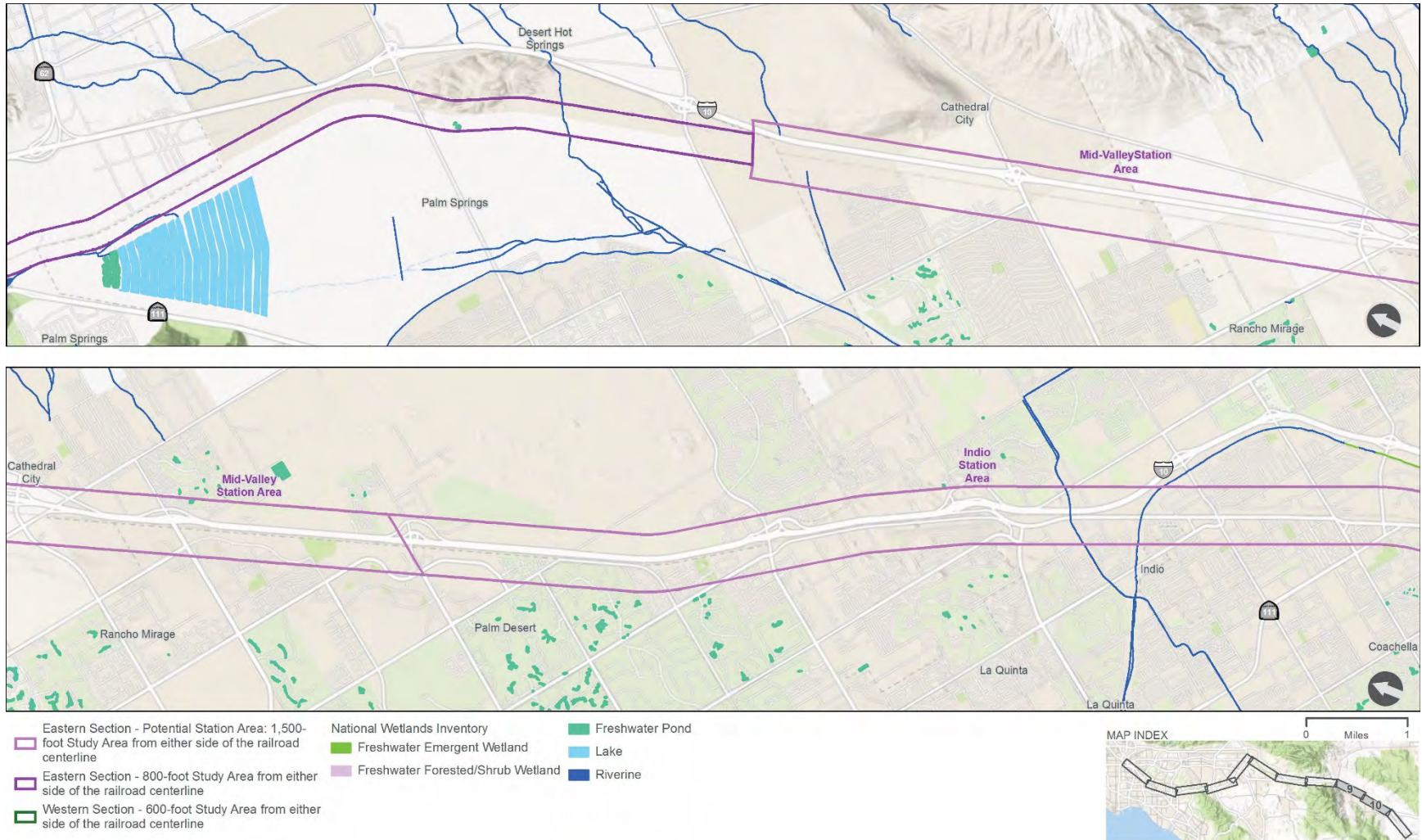
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Figure 3.7-1. National Wetland Inventory-Mapped Wetlands within the Tier 1/Program EIS/EIR Study Area

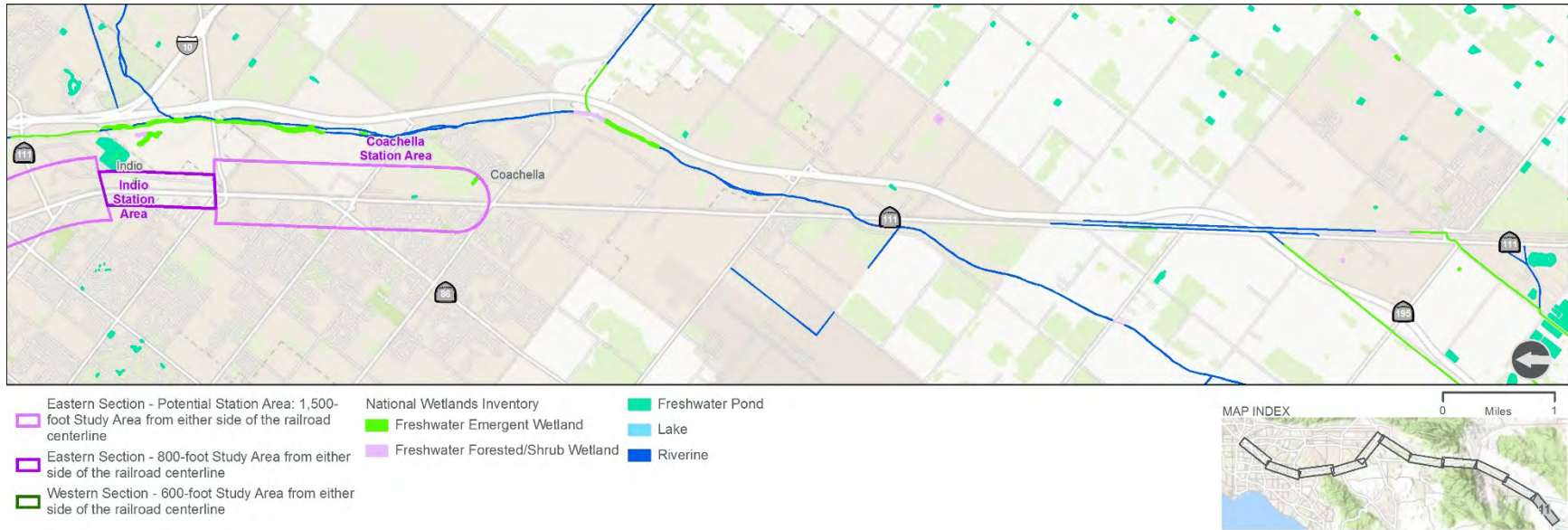
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Figure 3.7-1. National Wetland Inventory-Mapped Wetlands within the Tier 1/Program EIS/EIR Study Area

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Build Alternative Option 2 (Indio Terminus)

The types of wetland areas that could be impacted by Build Alternative Option 2 are the same as for Build Alternative Option 1. Table 3.7-4 provides a summary of potential wetlands within Build Alternative Option 2.

Table 3.7-4. Summary of Wetland Types (Build Alternative Options 2 and 3)

Wetland Type	Number and Area of Wetland Types within Western Section	Number and Area of Wetland Types within Eastern Section	Total Number and Area of Wetland Types
Freshwater emergent wetland	6 (2.15 acres)	4 (3.51 acres)	10 (5.66 acres)
Freshwater forested/shrub wetland	43 (31.04 acres)	8 (78.31 acres)	51 (109.35 acres)
Freshwater pond	21 (25.61 acres)	28 (66.99 acres)	49 (92.60 acres)
Lakes	7 (24.80 acres)	0 (0.00 acres)	7 (24.80 acres)
Riverine	114 (150.07 acres)	122 (347.30 acres)	236 (497.37 acres)

Source: USFWS 2018

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

As shown in Table 3.7-4, the types of wetland areas that could be impacted by Build Alternative Option 3 are the same as for Build Alternative Option 2.

3.7.5 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 jurisdictional waters and wetland resources would be anticipated as a result of constructing any of the Build Alternative Options. Most effects on jurisdictional waters or wetlands would occur during construction when the ground is disturbed and when there could be temporary disturbance of wetland areas and functions.

Effects could result from vegetation clearing, site grading, and filling for construction access to permanent facilities. These activities could decrease soil permeability, infiltration, water storage capacity, and vegetation regrowth, which may reduce wetland functions. Regulations require that these areas be revegetated and returned to natural conditions following construction.

Additionally, fuel oils, chemicals, or concrete leachate could be spilled during construction activities. An increase in sediment loading and turbidity from grading and filling activities could contribute sediment-laden runoff into wetlands and degrade water quality. Invasive species could be introduced and spread as a result of disturbance, thus undermining the function of wetland vegetation. After construction is complete, operational effects on waters of the U.S. and waters of the state would be short term but recurring from maintenance of structures that cross waters of the U.S. and waters of the state.

Operational or long-term effects would include the permanent placement of fill of wetlands and wetland buffers for the permanent rail structures and support infrastructure. In addition, permanent effects on wetlands that could persist throughout operation include the following:

- Permanently removing wetland area and function, including wetlands buffer areas
- Generating runoff from new pollution-generating impervious surfaces (roadway modifications, station infrastructure, and maintenance facilities), potentially increasing pollutant loads to wetlands
- Potentially spilling fuel, oil, or chemical spills at stations or maintenance facilities

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 proposed Program associated with this service-level evaluation. Therefore, the No Build Alternative is anticipated to have no effect on jurisdictional waters or wetland resources.

Build Alternative Options 1, 2, and 3

Jurisdictional Waters and Wetland Effects

CONSTRUCTION

Western Section. Although the Western Section contains areas that could be considered jurisdictional waters or wetlands, the Western Section of the Program Corridor would utilize existing rail infrastructure, and no additional track improvements, station improvements or new stations would be required to accommodate the proposed service. When compared with the No Build

Alternative, short-term/temporary effects on jurisdictional waters or wetland resources would be considered negligible because no additional construction activities would occur within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. The Eastern Section of Build Alternative Option 1 would require infrastructure improvements such as sidings, additional main line track, wayside signals, drainage, grade-separation structures, and stations to accommodate the proposed service; however, the location of these improvements has not yet been identified. Construction activities associated with the Eastern Section could include vegetation removal; ground clearing; placement of fill material; new, replaced, or extended culverts; and station facility development. These type of construction activities could result in short-term/temporary effects associated with the temporary disturbance of wetland areas and functions.

Waterbodies that may run parallel to the Eastern Section route, such as San Timoteo Creek, could be affected by longer stretches of cut, fills, or diversions required to construct ballast, embankments, drainage slopes, or other railway or station infrastructure components. Waterbodies adjacent to the Eastern Section route may also be relocated or even truncated to accommodate the new railway and station infrastructure. The placement of fill required for major infrastructure, such as sidings, spurs, yards, and stations, could further increase effects within jurisdictional waters and wetland areas. Effects on jurisdictional waters, including wetlands, in the Eastern Section are anticipated to be unavoidable given the number of waterways and drainages. However, effects on jurisdictional waters, including wetlands, would be minimized through regulatory compliance with Sections 401 and 404 of the CWA. Jurisdictional waters that run perpendicular to the rail line would be affected for the length and width of the culvert(s) required to allow water flows to pass beneath the rail line, plus any erosion or scour control constructed within the watercourse.

In some locations, effects could be further minimized by using a bridge structure to clear-span the watercourse. Effects on wetlands would be dependent on the placement of new rail infrastructure (tracks, ballast, embankments, stations, etc.) in relation to wetlands. In addition, avoidance of NWI-mapped wetlands identified for the various station area study areas (Figure 3.7-1) would help minimize effects on those resources. Regulatory agencies like USACE and RWQCB have rules and guidance that require no net loss of wetland functions and values when such resources may be impacted. It is anticipated that regulatory compliance with Section 401 and 404 of the CWA would require avoidance, minimization, or compensatory mitigation that would meet the goal of no net loss of wetland functions and values. Therefore, effects associated with the Eastern Section of Build Alternative Option 1 on jurisdictional waters and wetland resources would be moderate when compared with the No Build Alternative.

Site-specific short-term/temporary and long-term/permanent effects would be considered at the Tier 2/Project-level analysis once details for the needed rail and station infrastructure are known.

Overall, as compared with Build Alternative Option 1, implementation of Build Alternative Option 2 could potentially have a lesser effect on jurisdictional waters and associated wetlands because Build Alternative Option 2 contains fewer locations of jurisdictional waters and fewer acres of wetlands. However, while the acres of jurisdictional waters and wetlands differs between Build Alternative Option 1 and Build Alternative Option 2, the magnitude of effects would be similar and would be considered of moderate intensity 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 on jurisdictional waters and wetlands 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 would be 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. During operation, existing maintenance activities that would occur within the ROW along the Western Section route would be in areas where the natural ecosystem has already been disturbed and the Program Corridor is heavily trafficked. Effects associated with the Western Section of Build Alternative Options 1, 2, and 3 on jurisdictional waters and wetland resources would be similar and negligible when compared with the No Build Alternative.

Eastern Section. Operational effects are anticipated to be limited to maintenance of culverts, bridges, embankments, and station areas. Efforts during the design phase to avoid wetlands would help to minimize potential operational effects because fewer jurisdictional waters and/or wetlands would be in proximity to a future rail line or station area. In addition, maintenance BMPs would be developed and implemented for future station areas to ensure that maintenance materials such as oils, lubricants, and fuels are handled in an appropriate regulatory manner and kept away from sensitive areas such as waterbodies or wetlands. Operational/long-term effects associated with the Eastern Section of Build Alternative Options 1, 2, and 3 would be similar and moderate when compared with the No Build Alternative.

3.7.6 NEPA Summary of Potential Effects

Table 3.7-5 summarizes 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 types of resources that may be affected and, more importantly, the relative magnitude of resources that may be affected. For jurisdictional waters and wetland resources, the level of intensity for effects is based on volume of habitat or wetlands potentially affected and that most wetland effects can be mitigated through wetland replacement or wetland mitigation banks. Specific mitigation measures to avoid and minimize effects would be analyzed at the Tier 2/Project-level phase.

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Table 3.7-5. NEPA Summary of Effects on Jurisdictional Waters and Wetland Resources

Alternative Options	Total Number and Acreage of Wetlands	Freshwater Emergent Wetland (acres)	Freshwater Forested/ Shrub Wetland (acres)	Freshwater Pond (acres)	Lake (acres)	Riverine (acres)	Potential Intensity of Effect: Western Section	Potential Intensity of Effect: Eastern Section
No Build Alternative ^a	0 (0.00 acres)	0	0	0	0	0	Construction: None Operation: None	Construction: None Operation: None
Build Alternative Option 1 (Coachella Terminus)	355 (731.10 acres)	6.58	109.35	93.00	24.80	497.37	Construction: Negligible Operation: Negligible	Construction: Moderate Operation: Moderate
Build Alternative Option 2 (Indio Terminus)	353 (729.78 acres)	5.66	109.35	92.60	24.80	497.37	Construction: Negligible Operation: Negligible	Construction: Moderate Operation: Moderate
Build Alternative Option 3 (Indio Terminus with Limited Third Track)	353 (729.78 acres)	5.66	109.35	92.60	24.80	497.37	Construction: Negligible Operation: Negligible	Construction: Moderate Operation: Moderate

Notes:

^a The No Build Alternative, as identified, includes existing and potential expansion of roadway, passenger rail, and air travel facilities within the Tier 1/Program EIS/EIR Study Area; however, for the service-level evaluation, identifying levels of effect from potential expansion of those facilities is speculative and would be dependent on Tier 2/Project-level analysis.

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3.7.7 CEQA Summary of Potential Impacts

Based on the information provided in Section 3.7.4 and 3.7.5, and considering the CEQA Guidelines Appendix G Checklist questions for jurisdictional waters and wetland resources, the Build Alternative Options are considered to have a potentially significant impact on jurisdictional waters and wetland resources when reviewed on a Program-wide basis.

Placing the infrastructure improvements and new stations largely within or along the existing ROW reduces the potential for significant impacts on these resources. However, because the precise sites for rail infrastructure and station facilities have not been selected, some jurisdictional waters and wetland resources may be significantly impacted. At the programmatic level of analysis, it is not possible to precisely know the location, extent, and characteristics of impacts on these resources. Proposed programmatic mitigation strategies discussed in Section 3.7.8 will be applied to reduce these impacts on jurisdictional waters and wetland resources.

Table 3.7-6 describes 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 additional site-specific mitigation measures necessary for Project implementation will occur as part of the Tier 2/Project-level analysis.

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Table 3.7-6. CEQA Summary of Impacts for Jurisdictional Waters and Wetland Resources

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p><i>Would the Program have a substantial adverse effect on federally or protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?</i></p>		
<p><i>Construction</i></p>		
<p>Western Section – No Impact. No construction impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level because no physical improvements are proposed within the Western Section under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – Potentially Significant. Potential construction impacts on wetlands depend on the location of infrastructure improvements and station locations, which are currently unknown. Some construction impacts, like placement of fill, would be considered permanent and subject to permitting by USACE and mitigation of impacts. Construction activities could impact water quality by creating debris and pollutants like concrete waste and sediment. Due to the variety of construction techniques and numerous waterways and drainages in the Tier 1/Program EIS/EIR Study Area, specific impacts and associated BMPs to minimize or reduce impacts cannot be determined at this time for Build Alternative Option 1, 2, or 3. The Tier 2/Project-level analysis would identify and mitigate impacts on waters of the state and waters of the U.S., including wetlands.</p>	<p>BIO-1, BIO-5, HWQ-1, HWQ-2</p>	<p>Less than Significant. Mitigation Strategies BIO-1, BIO-5, HWQ-1, and HWQ-2 would minimize, reduce, or avoid potential impacts on wetlands by identifying resources during Tier 2/Project-level analysis and by providing a program for avoiding, replacing, or compensating for temporary or permanent impacts on wetlands.</p>
<p><i>Operation</i></p>		
<p>Western Section – No Impact. No operational impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level because no physical improvements are proposed within the Western Section under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Potentially Significant. Potential operational impacts on wetlands depend on the location of infrastructure improvements and station locations, which are currently unknown. Some operational impacts could result in an increase in pollutants, such as fuel and oils, that could enter surface waterways. The Tier 2/Project-level analysis would identify and analyze any impacts on waters of the state and waters of the U.S., including wetlands during operational activities under Build Alternative Option 1, 2, or 3.</p>	<p>HWQ-3, HAZ-2</p>	<p>Less than Significant. Mitigation Strategies HWQ-3 and HAZ-2 would minimize, reduce, or avoid potential impacts related to violating water quality standards and waste discharge requirements by requiring compliance with applicable regulations. During Tier 2/Project-level analysis, site specific BMPs would be identified and implemented to protect potentially impacted wetlands.</p>

Notes:

BMP=best management practice; EIR=environmental impact report; EIS=environmental impact statement; U.S.=United States; USACE=United States Army Corps of Engineers

3.7.8 Avoidance, Minimization, and Mitigation Strategies

The environmental planning and review process typically involves considerations of avoidance, minimization, and compensatory mitigation with regard to waters of the U.S. and waters of the state. Measures to avoid, minimize, and provide compensatory mitigation for unavoidable impacts follow USACE rules and guidance, with the goal of no net loss of wetland functions and values. Avoidance, minimization, and mitigation strategies would be considered in evaluating impacts related to waters of the U.S. and waters of the state. Avoidance and minimization of effects will be incorporated when feasible. If effects cannot be avoided or minimized, mitigation strategies will be implemented.

Identified below are proposed programmatic mitigation strategies for further consideration in the Tier 2/Project-level analysis. Examples of programmatic mitigation strategies for wetland resources include those designed to avoid effects and impacts, when possible, and minimize effects and impacts where complete avoidance is not feasible, particularly to jurisdictional waters. In addition to those mitigation strategies proposed below, mitigation for unavoidable effects and impacts on wetland resources (if identified in the Tier 2/Project-level analysis) could include in-lieu fees and on- or off-site mitigation such as habitat or vegetation restoration or payment into a conservation bank. Coordination with USACE, RWQCB, USFWS, and CDFW would occur to develop Project-specific mitigation measures during the Tier 2/Project-level analysis after design details are known. Proposed programmatic mitigation strategies, consistent with state and federal regulations, include, but are not limited to, the following:

Mitigation Strategy BIO-1: During the Tier 2/Project-level analysis, a preliminary biological resource screening shall be performed as part of the environmental review process to determine whether the specific rail infrastructure or station facility proposed has any potential to impact biological resources. If the specific rail infrastructure or station facility proposed has no potential to impact biological resources, no further action will be required. If the specific rail infrastructure or station facility proposed has the potential to impact biological resources, a qualified biologist shall conduct a biological resources assessment report to document the existing biological resources within the Tier 2/Project-level study area. The report shall include, but not be limited to, analysis and recommendations on the following topics:

- Special-status species
- Nesting birds
- Wildlife movement
- Sensitive plant communities and critical habitat
- Jurisdictional waters

- Applicable habitat conservation plans
- Other biological resources identified as sensitive by local, state and/or federal agencies

Pending the results of the biological resources assessment, design alterations; further technical studies (e.g., protocol surveys); and/or consultations with the United States Fish and Wildlife Service, California Department of Fish and Wildlife, and other local, state, and federal agencies may be required. If the specific rail infrastructure or station facility proposed cannot be designed without complete avoidance, the lead agency shall coordinate with the appropriate resource agency to obtain regulatory permits and implement Project-specific mitigation prior to any construction activities.

Mitigation Strategy BIO-5: Prior to initiation of construction activities (including staging and mobilization), all personnel associated with Project construction shall attend worker environmental awareness program training, conducted by a qualified biologist, to aid workers in recognizing special-status resources that may occur in the Tier 2/Project-level study area. The specifics of this program shall include, but not be limited to, the following:

- Identification of the sensitive species and habitats
- Description of the regulatory status and general ecological characteristics of sensitive resources
- Review of the limits of construction and mitigation measures required to reduce impacts on biological resources within the work area
- Preparation of a fact sheet conveying this information shall for distribution to all contractors, their employers, and other personnel involved with construction of the Project
- Employee documentation associated with worker environmental awareness program attendance and acknowledgment

Mitigation Strategy HAZ-2: During Tier 2/Project-level analysis, a site-specific hazardous materials management program shall be prepared for the specific rail infrastructure or station facilities proposed. The hazardous materials management program shall provide for safe storage, containment, and disposal of chemicals and hazardous materials related to Project construction and operation, including the proper disposal of waste materials. The hazardous materials management program shall include, but should not be limited to, the following:

- A description of hazardous materials and hazardous wastes used (29 Code of Federal Regulations 1910.1200)

- A description of handling, transport, treatment, and disposal procedures, as relevant for each hazardous material or hazardous waste (29 Code of Federal Regulations 1910.120)
- Preparedness, prevention, contingency, and emergency procedures, including emergency contact information (29 Code of Federal Regulations 1910.38)
- A description of personnel training including, but not limited to: (1) recognition of existing or potential hazards resulting from accidental spills or other releases; (2) implementation of evacuation, notification, and other emergency response procedures; (3) management, awareness, and handling of hazardous materials and hazardous wastes, as required by their level of responsibility (29 Code of Federal Regulations 1910)
- Instructions on keeping Safety Data Sheets for each on-site hazardous chemical (29 Code of Federal Regulations 1910.1200)
- Identification of the locations of hazardous material storage areas, including temporary storage areas, which shall be equipped with secondary containment sufficient in size to contain the volume of the largest container or tank (29 Code of Federal Regulations 1910.120)

Mitigation Strategy HWQ-1: During Tier 2/Project-level analysis, additional floodplain hydrology documentation shall be conducted to determine if the siting of specific rail infrastructure or station facility proposed would encroach into a floodplain. If the siting of specific rail infrastructure or station facilities requires encroachment into a floodplain, a floodplain assessment shall be conducted to evaluate the impacts of specific designs on water surface elevations and flood conveyance and evaluate potential flooding risk. Any project that would result in floodplain encroachment shall coordinate with the governing agency or local jurisdiction. Any additional requirements that may be needed shall be determined in coordination with the applicable regulatory agencies.

Mitigation Strategy HWQ-2: Based on the results of the Tier 2/Project-level analysis and recommendations, the construction of specific rail infrastructure or station facility proposed shall comply with the provisions of the National Pollutant Discharge Elimination System General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order Number 2009-0009-DWQ, National Pollutant Discharge Elimination System Number CAS000002) and any subsequent amendments (Order Number 2010-0014-DWQ and Order Number 2012-0006-DWQ). These provisions shall include, but are not limited to, the following:

- Construction activities shall not commence until a waste discharger identification number is received from the State Water Resources Control Board Stormwater Multiple Application and Report Tracking System.

- Identification of good housekeeping, erosion control, and sediment control best management practices shall be utilized during construction activities.
- A stormwater pollution prevention plan shall be prepared.
- A rain event action plan shall be prepared.
- A notice of termination shall be submitted to the State Water Resources Control Board within 90 days of completion of construction and stabilization of the site.

These requirements, and any additional approvals, shall be determined in coordination with the governing agencies or local jurisdiction before construction on a project commences.

Mitigation Strategy HWQ-3: Based on the results of the Tier 2/Project-level analysis and recommendations, the operation of specific rail infrastructure or station facility proposed shall comply with the provisions of the applicable Regional Water Quality Control Board Municipal Separate Storm Sewer System Program. These provisions shall include, but are not limited to, the following:

- Low impact, site design, and source control best management practices shall be identified to be utilized during operational activities.
- A water quality management plan shall be prepared that will be implemented and maintained throughout the life of a project and used by property owners, facility operators, tenants, facility employees, and maintenance contractors.

These requirements, and any additional approvals, shall be determined in coordination with the governing agencies or local jurisdiction before operation on a project commences.

3.8 Biological Resources

3.8.1 Introduction

This section identifies biological resources within the Tier 1/Program EIS/EIR Study Area and provides an evaluation of biological resource effects associated with implementing the No Build Alternative and the Build Alternative Options. Information contained in this section is summarized from the *Biological and Wetland Resources Technical Memorandum* (Appendix G of this Tier 1/Program EIS/EIR).

3.8.2 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 biological 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

Federal Endangered Species Act

The Federal Endangered Species Act (FESA) of 1973, as amended (16 USC Section 1531 et seq.) provides a means whereby the ecosystems upon which endangered and threatened species depend may be conserved and provides a program for the conservation of such endangered and threatened species (Section 1531[b], Purposes). All federal agencies are to seek to conserve endangered and threatened species and utilize applicable authorities in furtherance of the purposes of FESA (Section 1531[c][1], Policy).

USFWS has primary administrative responsibility under FESA for terrestrial and freshwater organisms. Species listed as threatened or endangered, or proposed, have specific protections under FESA. All federal agencies are required to consult (or confer) with USFWS (and/or the National Marine Fisheries Service for marine species) in accordance with Section 7 of FESA if the agency determines that any proposed action may affect a listed species. Each agency must ensure that any federal action or activity is not likely to jeopardize the continued existence of any species listed or proposed to be listed under FESA or result in the destruction or modification of designated or proposed critical habitat (Section 1536[a], Interagency Cooperation, and 50 CFR Part 402). Section 9 of FESA prohibits any "take" (as defined in FESA: to harass, harm, pursue, hunt, shoot,

wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of a listed species. Section 10 of FESA allows for exemptions to the take prohibition, based on incidental take statements issued in accordance with biological opinions issued under Section 7 consultation or other authorized permits.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 USC Section 703-712), is the domestic law that affirms, or implements, the U.S.' commitment to four international conventions (with Canada, Japan, Mexico, and Russia) for the protection of a shared migratory bird resource. Each of the conventions protects selected species of birds that occur in both countries at some point during their annual life cycle. The MBTA protects migratory birds and their nests, eggs, young, and parts from possession, sale, purchase, barter, transport, import, export, and take. For purposes of the MBTA, take is defined as “to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect” (50 CFR Part 10.12). The MBTA applies to migratory birds identified in 50 CFR Part 10.13.

The MBTA protects all birds occurring in the U.S., except for several non-native species (e.g., house sparrow, European starlings, and rock pigeons) and non-migratory upland game birds. USFWS implements and enforces the MBTA; is the lead federal agency for managing and conserving migratory birds in the U.S.; regulates the take of migratory birds for educational, scientific, and recreational purposes; and requires that harvests be limited to levels that prevent overutilization. Special purpose permits under 50 CFR Part 21.27 of the MBTA are required if an action would take, possess, or involve the sale or transport of birds protected by the MBTA.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act of 1940, and as amended (16 USC Section 668-668d), prohibits anyone without a permit issued by USFWS from taking bald or golden eagles, including their parts, nests, or eggs. The Bald and Golden Eagle Protection Act defines take as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” For purposes of these guidelines, disturb means “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.”

Executive Order 13112, Invasive Species

EO 13112 requires federal agencies to identify actions that may affect invasive species; use relevant programs to prevent the introduction of invasive species; detect, respond, and control such species; monitor invasive species populations; provide for restoration of native species; conduct research on invasive species; and promote public education on the spread of invasive species.

Executive Order 13186, Protection on Migratory Bird Populations

EO 13186 directs each federal agency taking actions that have or may have effects on migratory bird populations to work with USFWS to develop a memorandum of understanding that will promote the conservation of migratory bird populations.

State

California Endangered Species Act

The California Endangered Species Act (CESA) prohibits the take of any fish, wildlife, or plant species listed as endangered or threatened, or designated as candidates for listing, under CESA. Take refers to mortality or injury of the listed species itself and not the modification of a listed species habitat. Compared with the FESA process, CESA contains a procedure for CDFW to issue a Section 2081 incidental take permit authorizing the take of listed and candidate species incidental to an otherwise lawful activity, subject to specified conditions, including that the effects of the take are fully mitigated.

Natural Communities Conservation Planning Act

The Natural Communities Conservation Planning Act encourages broad-based planning to provide for effective protection and conservation of the state's wildlife resources while continuing to allow appropriate development and growth. Natural community conservation plans identify measures necessary to conserve and manage natural biological diversity within the planning area while allowing compatible and appropriate economic development, growth, and other human uses.

*California Fish and Game Code***SECTIONS 3511, 4700, 5050, AND 5515 (FULLY PROTECTED)**

The California Fish and Game Code designates 37 fully protected species and prohibits the take or possession at any time of such species with certain limited exceptions.

SECTIONS 3503, 3503.5, AND 3513 (BIRD PROTECTIONS)

Section California Fish and Game Code 3503 states it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by code or any regulation made pursuant thereto. Section 3503.5 prohibits the take, possession, or needless destruction of any nests, eggs, or birds in the orders Falconiformes (New World vultures, hawks, eagles, ospreys, and falcons, among others) or Strigiformes (owls). Section 3513 prohibits the take or possession of any migratory non-game bird or part thereof, as designated in the MBTA. To avoid violation of the take provisions, it is generally required that project-related disturbance at active nesting territories be reduced or eliminated during the nesting cycle.

California Native Plant Protection Act

The California Native Plant Protection Act requires all state agencies to use their authority to carry out programs to conserve endangered and rare native plants. Under the California Native Plant Protection Act, the Fish and Game Commission may designate native plants as endangered or rare and prohibit the take of such plants, with certain exceptions.

Regional

Coachella Valley Multiple Species Habitat Conservation Plan

The Coachella Valley Multiple Species Habitat Conservation Plan (MSHCP) is a comprehensive, multijurisdictional habitat conservation plan focusing on the conservation of species and their associated habitats in the Coachella Valley region of Riverside County. It covers 27 sensitive plant and wildlife species, as well as 27 natural communities. The approval of the Coachella Valley MSHCP and execution of the Implementing Agreement allows signatories to the Implementing Agreement to issue take authorizations for all species covered by the Coachella Valley MSHCP, including federally and state-listed species, as well as other identified covered species and/or their habitats.

Each participating city or local jurisdiction within the Coachella Valley imposes a development mitigation fee for new development projects within its boundaries. With payment of the mitigation fee and compliance with the requirements of the Coachella Valley MSHCP, full mitigation in compliance with CEQA, NEPA, FESA, and CESA is granted. The plan is administered by the Coachella Valley Conservation Commission. Coverage under this plan is limited to the plan participants. RCTC is not a participant to the Coachella Valley MSHCP.

Western Riverside County Multiple Species Habitat Conservation Plan

Similar to the Coachella Valley MSHCP, the Western Riverside County MSHCP is a comprehensive, multijurisdictional habitat conservation plan focusing on conservation of species and their associated habitats in western Riverside County and is managed by the Regional Conservation Authority. RCTC is a signatory to the Implementing Agreement for the Western Riverside County MSHCP. Any individual, business, or public agency wishing to construct a project within the criteria area of the Western Riverside County MSHCP must obtain an approval from the Regional Conservation Authority and a permit for the project from the local agency responsible.

County General Plans

Applicable elements of the general plans for the four counties that the Program Corridor crosses (Los Angeles County, Orange County, Riverside County, and San Bernardino County) are summarized in the *Biological and Wetland Resources Technical Memorandum* (Appendix G of this Tier 1/Program EIS/EIR).

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.

3.8.3 Methods for Evaluating Environmental Effects

The methodology for the biological resource evaluation consists of a service-level quantitative assessment, not a detailed evaluation of individual biological resources. The quantification compares relative effects among the Build Alternative Options. A detailed Tier 2/Project-level analysis would be completed and identify permitting requirements for construction.

The methodology for this evaluation consists of using existing data to identify biological resources, such as special-status plant and wildlife species, sensitive vegetation communities, and suitable habitat for federally and state-listed species, that could be present within the Tier 1/Program EIS/EIR Study Area. Each Build Alternative Option is compared with other Build Alternative Options within the same geographical sections, as well as with the No Build Alternative.

Tier 1/Program EIS/EIR Study Area

This service-level evaluation is limited to a desktop evaluation of the data sources described in Section 3.8.3. The Tier 1/Program EIS/EIR Study Area was combined with GIS overlays to identify potential biological resources (special-status plant and wildlife species, sensitive vegetation

communities, and suitable habitat for federally and state-listed species) that could be affected by the Program. These potential biological resources 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.

For this evaluation, the estimated number and acreage of sensitive vegetation communities and habitat were compared for each of the Build Alternative Options. The detailed footprints associated with each of the Build Alternative Options considered would not be determined until additional studies are conducted in the Tier 2/Project-level analysis. Therefore, the number and acreages associated with these resources within the Tier 1/Program EIS/EIR Study Area provide an estimate of the magnitude of potential effects. The intensity of an effect as a result of the Build Alternative Options are characterized as negligible, moderate, or substantial compared with the No Build Alternative.

In a Tier 2/Project-level analysis, impacts would be analyzed quantitatively using more detailed analytical methods, such as field surveys, mapping of biological resources, and use of GIS overlays of biological resources with the defined Project footprint to quantify impacts.

Data Sources

Online GIS data available from USFWS, CDFW, and a variety of other sources were used to identify biological resources with potential to occur within the Tier 1/Program EIS/EIR Study Area.

Specifically, the following resources were reviewed:

- **USFWS Information for Planning and Consultation website:** A list of federal candidate, proposed, threatened, and endangered plant and wildlife species was obtained for the Tier 1/Program EIS/EIR Study Area from the USFWS Information for Planning and Consultation website. The list was generated on June 21, 2018 (Appendix G of this Tier 1/Program EIS/EIR).
- **California Natural Diversity Database RareFind:** Lists of special-status plant and wildlife species were prepared through a two-fold inquiry of the California Natural Diversity Database RareFind 5 database. A standard quad search was performed using the RareFind program (CDFW 2018) that included 28 USGS 7.5-minute quadrangles including and surrounding the Tier 1/Program EIS/EIR Study Area (provided in Appendix G of this Tier 1/Program EIS/EIR). In addition, a GIS mapping exercise captured all California Natural Diversity Database occurrences for special-status species with the potential to occur within the Tier 1/Program EIS/EIR Study Area.

- **California Native Plant Society’s Online Inventory of Rare and Endangered Plants of California:** The California Native Plant Society’s Online Inventory of Rare and Endangered Plants of California was queried for special-status plant species that occur in Los Angeles, Orange, San Bernardino, and Riverside Counties (California Native Plant Society 2018).
- **eBird database:** This list was consulted to identify bird observations in or near the Tier 1/Program EIS/EIR Study Area (eBird 2017).
- **Critical habitat:** To identify proposed and designated critical habitat within 1 mile of the Tier 1/Program EIS/EIR Study Area, GIS layers from the USFWS Ventura and Carlsbad field office websites were reviewed in June 2018.
- **Areas of protected habitat:** To identify areas of protected habitat, the California Protected Areas Database 2017 was consulted.
- **Wildlife movement linkages:** To identify wildlife movement linkages, the South Coast Missing Linkage Project: A Linkage Design for the San Bernardino-San Jacinto Connection (Penrod et al. 2005) and California Essential Habitat Connectivity Project (Spencer et al. 2010) were consulted.

Related Resources

This evaluation incorporates data and evaluation from related resources to contribute to the assessment of effects on biological resources. These related resources are identified in Table 3.8-1.

Table 3.8-1. Related Resource Inputs for Biological Resources

Resource	Input for Biological Assessment
Land Use and Planning (Section 3.2)	Land uses that correlate to terrestrial or aquatic habitats, such as open space and conservation areas, were identified. Applicable habitat conservation plans were identified.
Noise and Vibration (Section 3.6)	Areas where noise and vibration effects exceed allowable thresholds and that correlate to terrestrial or aquatic habitats or threatened and endangered species’ habitats were identified.
Jurisdictional Waters and Wetland Resources (Section 3.7)	Jurisdictional waters and wetland resources that may provide aquatic habitat and/or support threatened and endangered species were identified.

Resource	Input for Biological Assessment
Floodplains, Hydrology, and Water Quality (Section 3.9)	Freshwater resources that may provide aquatic habitat and/or support threatened and endangered species were identified.

3.8.4 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 topography crossed by the Program Corridor ranges from relatively flat, urban landscapes in the Western Section to hilly canyons in the central portion, and flat, low desert habitat in the Eastern Section. Elevations within the Program Corridor range from 300 feet above mean sea level at the western terminus in Los Angeles up to 600 feet in Corona, 1,000 feet in Colton, and 2,600 feet in Beaumont (highest elevation), and down to 75 feet below mean sea level at the eastern terminus in Coachella (lowest elevation).

The Program Corridor traverses four major geographic regions: the Los Angeles Basin from Los Angeles to Corona, the Inland Empire from Corona to Redlands, the Peninsular Range from Redlands to Banning, and the northwestern Sonoran Desert from Banning to 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 of the Tier 1/Program EIS/EIR Study Area, although some areas occur in or adjacent to lands that are in a natural condition. Much of the Tier 1/Program EIS/EIR Study Area from Los Angeles to Redlands is urbanized, offering limited habitat value for most plant and wildlife species.

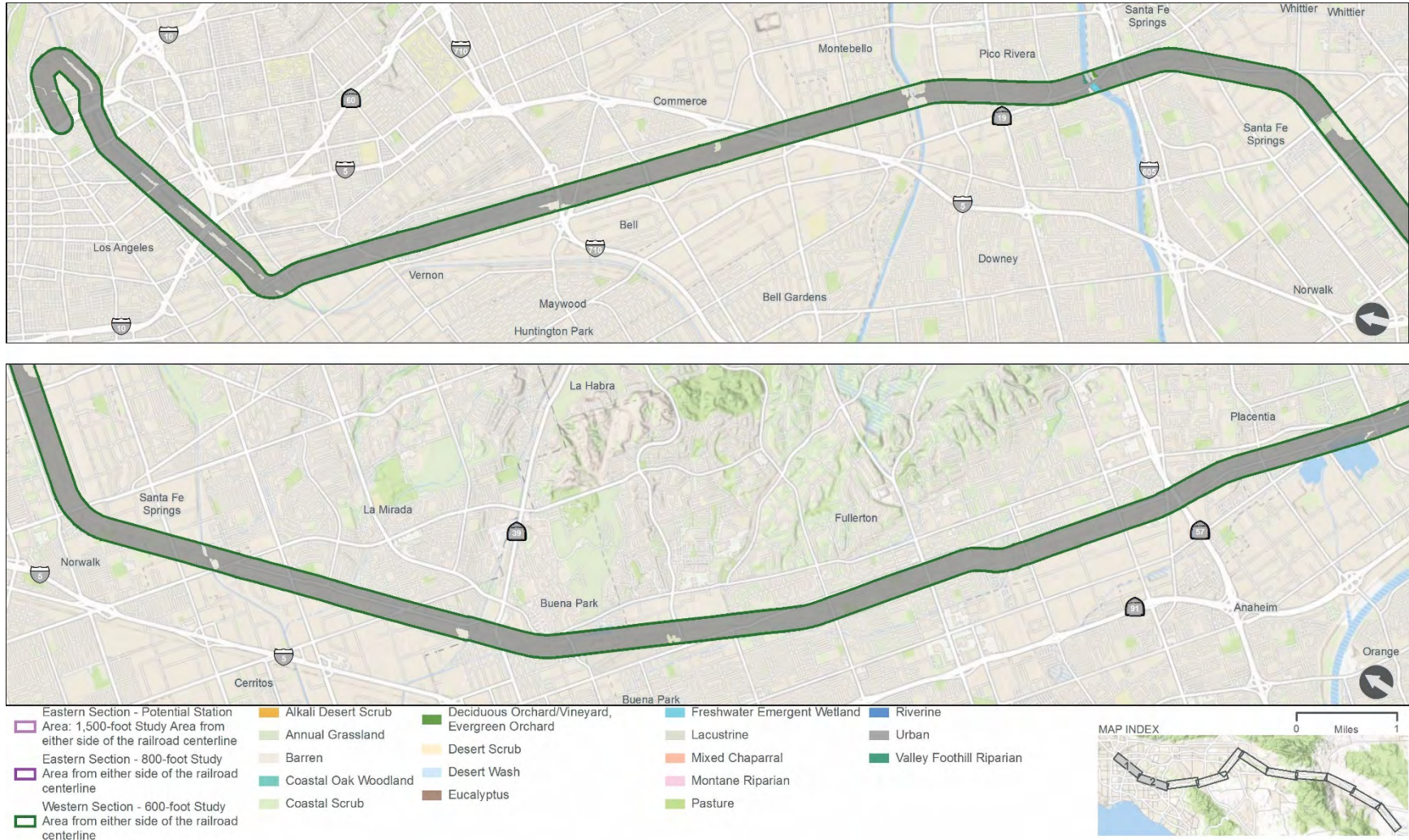
Areas of natural habitat occur mainly along the Santa Ana River basin, which provides riparian woodland and wetland habitat for a number of special-status plant and wildlife species. San Timoteo Canyon dominates the region between Redlands and Banning. Most of this region is marked by natural areas of riparian woodland, grasslands, and wetlands that provide habitat for a number of special-status plants and wildlife. The Program Corridor east of Banning occurs within the Sonoran Desert and is a mixture of developed and undeveloped desert scrub dominated by creosote (*Larrea tridentata*). Transportation facilities such as interstate highways, state highways, local roadways, and existing railroads are present within or adjacent to the Program Corridor.

Vegetation Communities and Other Land Cover Types

Figure 3.8-1 shows the vegetation communities located within the Tier 1/Program EIS/EIR Study Area. Detailed descriptions of these vegetation communities and other land cover types are provided in Appendix G of this Tier 1/Program EIS/EIR.

Figure 3.8-1. Vegetation Communities within the Tier 1/Program EIS/EIR Study Area

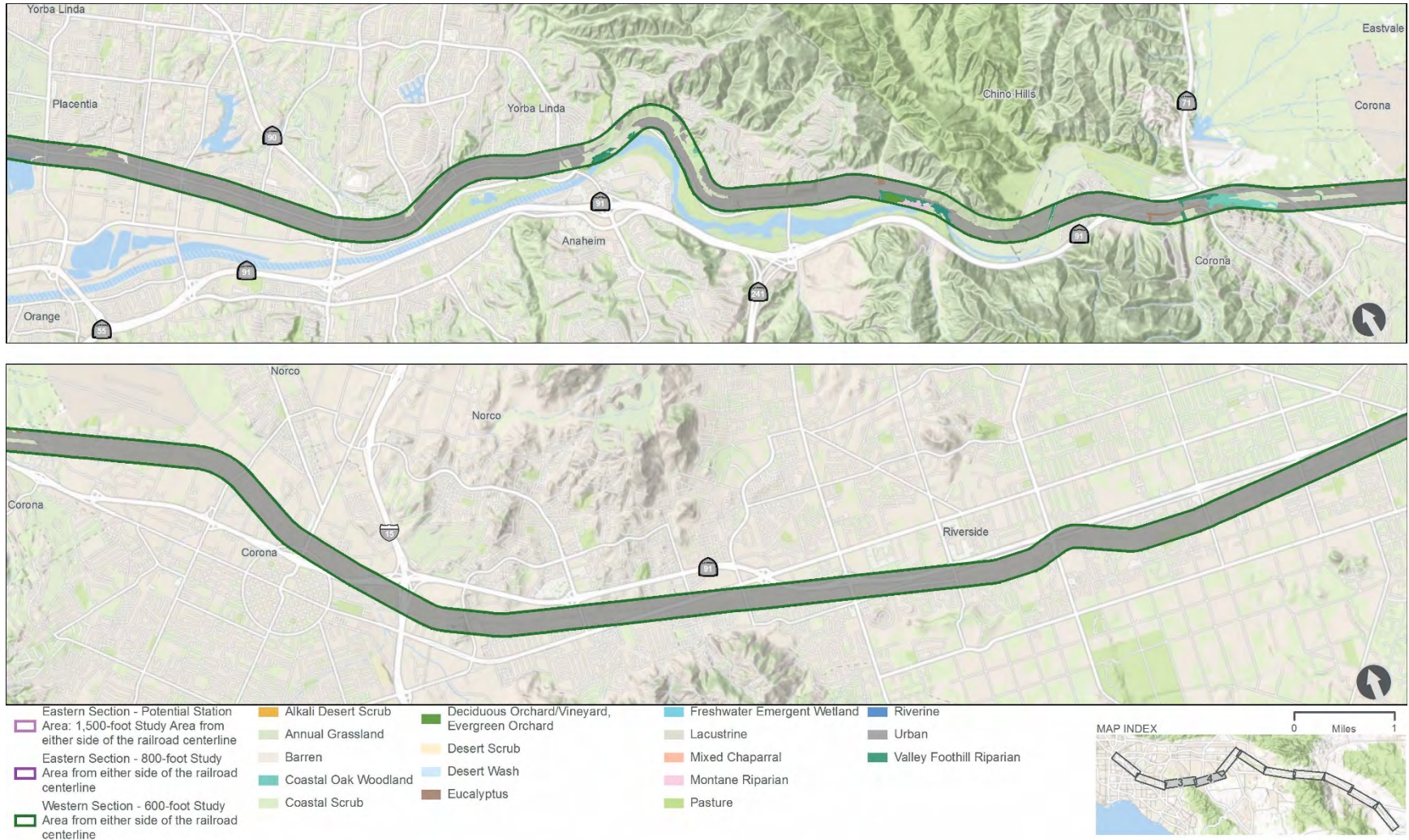
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Figure 3.8-1. Vegetation Communities within the Tier 1/Program EIS/EIR Study Area

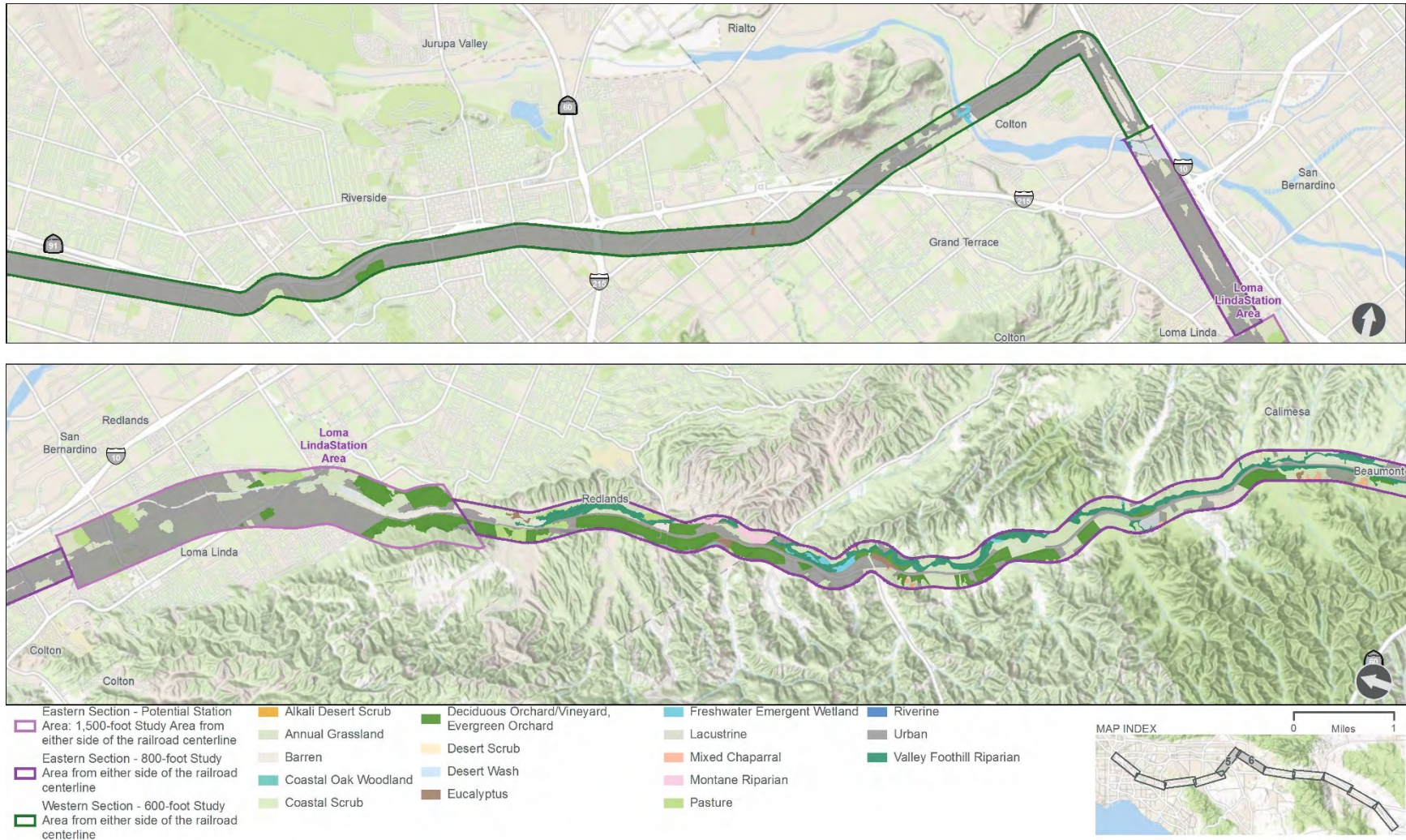
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Figure 3.8-1. Vegetation Communities within the Tier 1/Program EIS/EIR Study Area

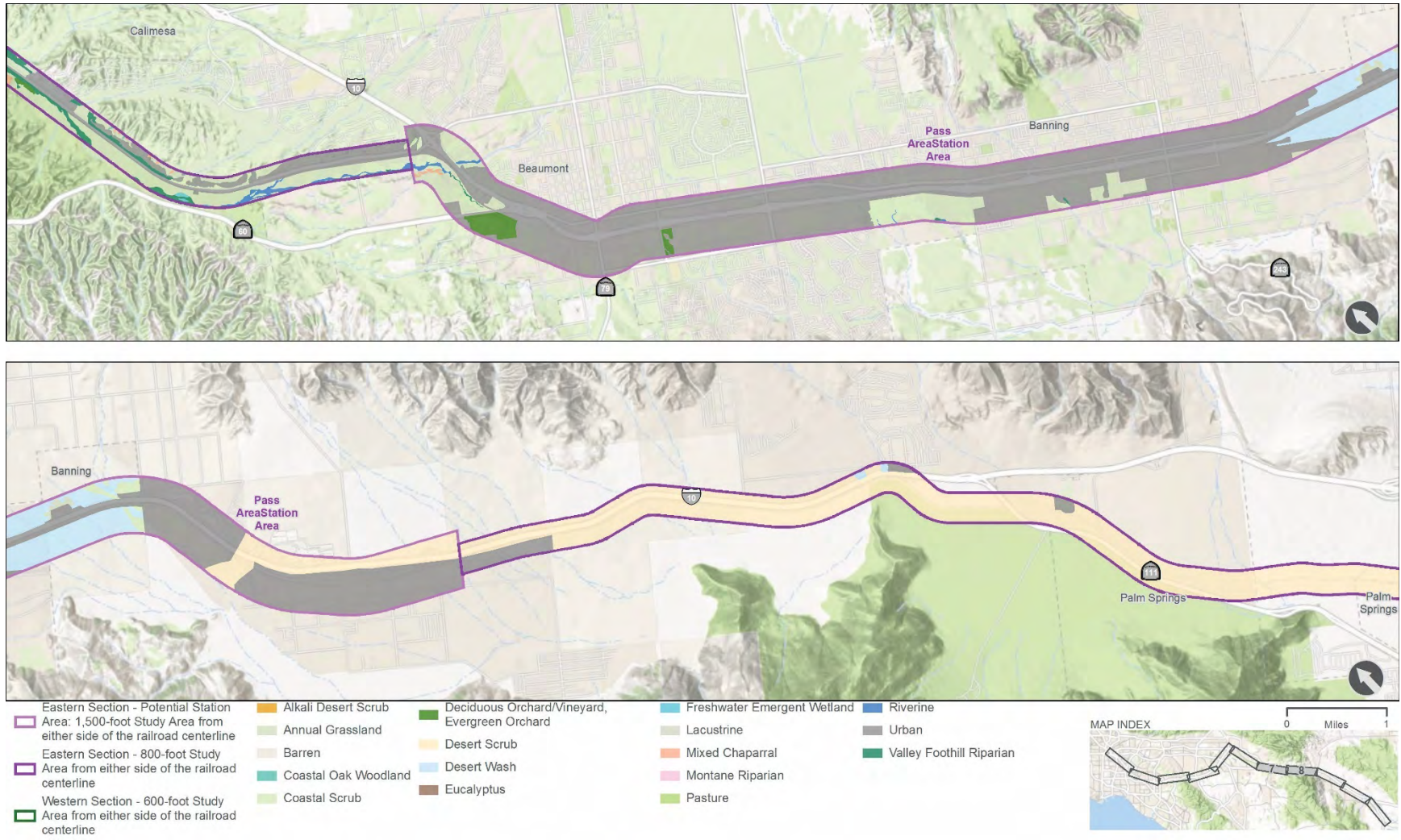
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Figure 3.8-1. Vegetation Communities within the Tier 1/Program EIS/EIR Study Area

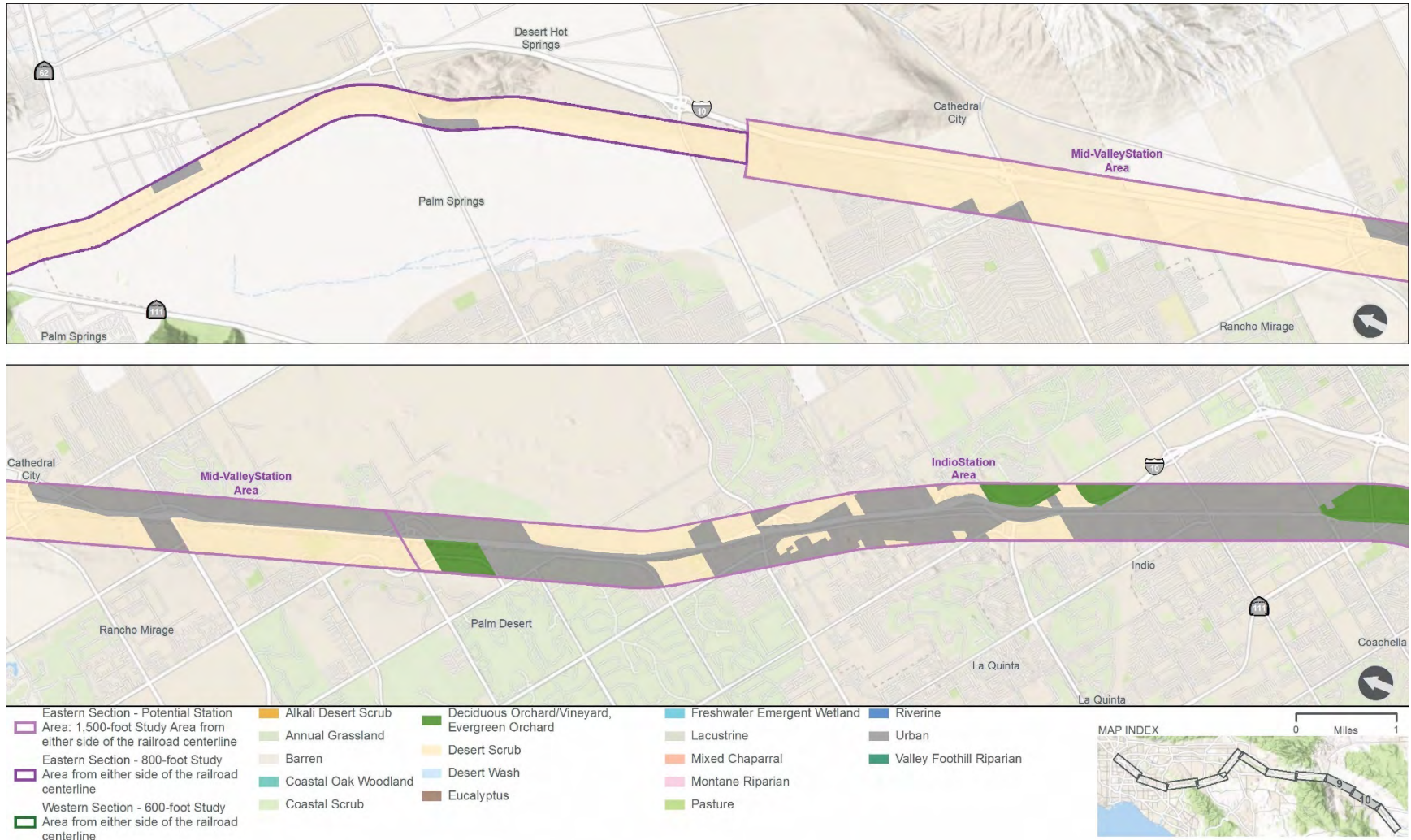
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Figure 3.8-1. Vegetation Communities within the Tier 1/Program EIS/EIR Study Area

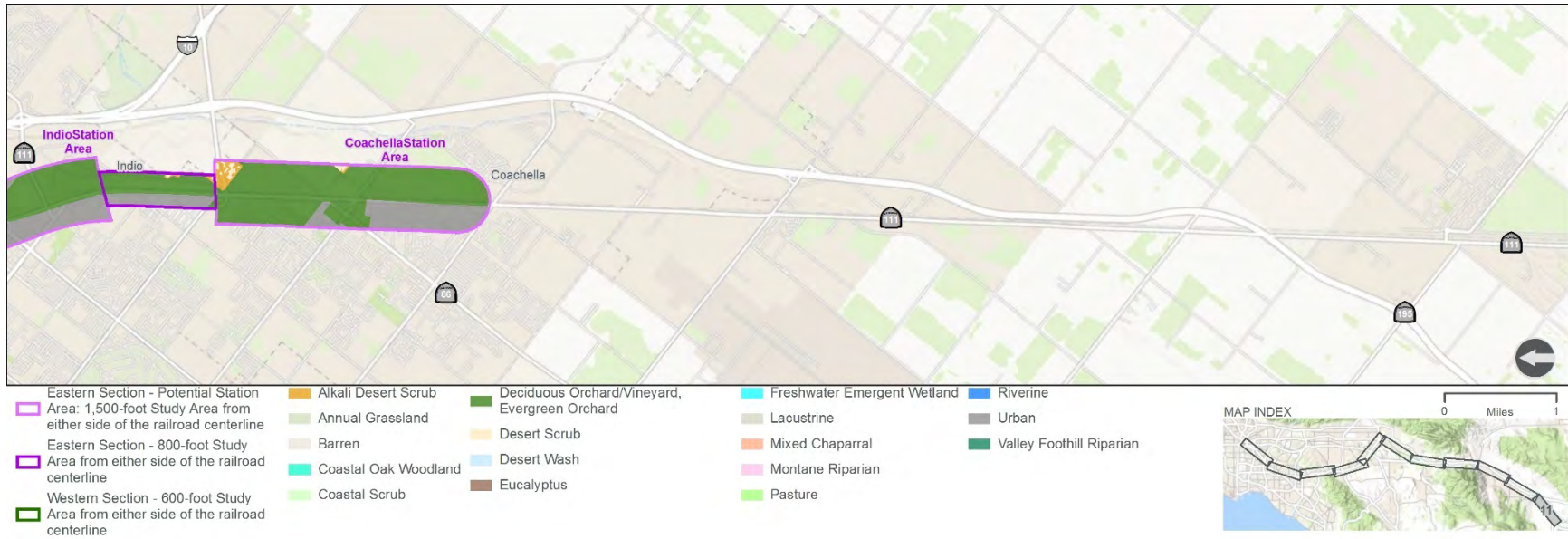
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Figure 3.8-1. Vegetation Communities within the Tier 1/Program EIS/EIR Study Area

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Build Alternative Option 1 (Coachella Terminus)

Table 3.8-2 summarizes vegetation communities or land cover types within the Program Corridor under Build Alternative Option 1. As indicated in Table 3.8-2, the dominant vegetation communities or land cover types in the Western Section of the Program Corridor are urban (9,379.67 acres), annual grassland (316.28 acres), and barren (158.46 acres), which equals approximately 98 percent of the total area within the Western Section of Build Alternative Option 1. For the Eastern Section of the Program Corridor, the dominant vegetation communities or land cover types are urban (9,529.88 acres), desert scrub (7,112.92 acres), annual grassland (1,513.91 acres), and cropland/orchard/vineyard (1,886.18 acres), which equals approximately 93 percent of the total area within the Eastern Section of Build Alternative Option 1.

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Table 3.8-2. Summary of Vegetation Communities (Build Alternative Option 1)

Vegetation Community	Western Section (acres)	Eastern Section: Non-Station Area (acres)	Eastern Section: Loma Linda Station Area (acres)	Eastern Section: Pass Area Station Area (acres)	Eastern Section: Mid-Valley Station Area (acres)	Eastern Section: Indio Station Area (acres)	Eastern Section: Coachella Station Area (acres)	Total Area of Vegetation Community (acres)
Alkali desert scrub	—	4.04	—	—	—	—	23.56	27.60
Annual grassland	316.28	922.41	281.77	309.73	—	—	—	1,830.19
Barren	158.46	77.28	69.20	—	—	—	—	304.93
Coastal oak woodland	35.90	3.52	—	—	—	—	—	39.41
Coastal scrub	65.43	100.74	5.35	189.96	—	—	—	361.48
Cropland/orchard/vineyard	30.30	504.27	182.53	78.82	—	471.68	648.88	1,916.48
Desert scrub	—	3,077.75	—	324.54	2,947.17	752.95	10.51	7,112.92
Desert wash	—	10.40	—	407.73	—	—	—	418.13
Eucalyptus woodland	13.94	24.08	—	—	—	—	—	38.02
Freshwater emergent Wetland	15.14	26.20	—	—	—	—	—	41.34
Lacustrine	14.05	35.59	—	—	—	—	—	49.64
Mixed chaparral	1.19	30.45	—	6.57	—	—	—	38.20
Montane riparian	12.33	29.60	—	—	—	—	—	41.93

Vegetation Community	Western Section (acres)	Eastern Section: Non-Station Area (acres)	Eastern Section: Loma Linda Station Area (acres)	Eastern Section: Pass Area Station Area (acres)	Eastern Section: Mid-Valley Station Area (acres)	Eastern Section: Indio Station Area (acres)	Eastern Section: Coachella Station Area (acres)	Total Area of Vegetation Community (acres)
Pasture	5.90	49.08	70.00	—	—	—	—	124.98
Riverine	—	43.89	—	14.18	—	—	—	58.08
Urban	9,379.67	1,317.54	898.06	3,948.19	670.08	2508.12	187.90	18,909.55
Valley foothill riparian	58.53	380.37	—	5.72	—	—	—	444.63

Source: Appendix G of this Tier 1/Program EIS/EIR

Build Alternative Option 2 (Indio Terminus)

Table 3.8-3 summarizes vegetation communities or land cover types within the Program Corridor under Build Alternative Option 2. As indicated in Table 3.8-3, the dominant vegetation communities or land cover types in the Western Section of the Program Corridor are urban (9,379.67 acres), annual grassland (316.28 acres), and barren (158.46 acres), which equals approximately 98 percent of the total area within the Western Section of Build Alternative Option 2. For the Eastern Section of the Program Corridor, the dominant vegetation communities or land cover types are urban (9,274.01 acres), desert scrub (7,100.51 acres), annual grassland (1,513.91 acres), and cropland/orchard/vineyard (1,116.54 acres), which equals approximately 93 percent of the total area within the Eastern Section of Build Alternative Option 2.

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

As summarized in Table 3.8-3, the types of vegetation communities and land cover types within Build Alternative Option 3 would be the same as those identified for Build Alternative Option 2.

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Table 3.8-3. Summary of Vegetation Communities (Build Alternative Options 2 and 3)

Vegetation Community	Western Section (acres)	Eastern Section: Non-Station Area (acres)	Eastern Section: Loma Linda Station Area (acres)	Eastern Section: Pass Area Station Area (acres)	Eastern Section: Mid-Valley Station Area (acres)	Eastern Section: Indio Station Area (acres)	Total Area of Vegetation Community (acres)
Alkali desert scrub	—	—	—	—	—	—	—
Annual grassland	316.28	922.41	281.77	309.73	—	—	1,830.19
Barren	158.46	77.28	69.20	—	—	—	304.93
Coastal oak woodland	35.90	3.52	—	—	—	—	39.41
Coastal scrub	65.43	100.74	5.35	189.96	—	—	361.48
Cropland/orchard/vineyard	30.30	383.51	182.53	78.82	—	471.68	1,146.84
Desert scrub	—	3,075.85	—	324.54	2,947.17	752.95	7,100.51
Desert wash	—	10.40	—	407.73	—	—	418.13
Eucalyptus woodland	13.94	24.08	—	—	—	—	38.02
Freshwater emergent wetland	15.14	26.20	—	—	—	—	41.34
Lacustrine	14.05	35.59	—	—	—	—	49.64
Mixed chaparral	1.19	30.45	—	6.57	—	—	38.20
Montane riparian	12.33	29.60	—	—	—	—	41.93

Vegetation Community	Western Section (acres)	Eastern Section: Non-Station Area (acres)	Eastern Section: Loma Linda Station Area (acres)	Eastern Section: Pass Area Station Area (acres)	Eastern Section: Mid-Valley Station Area (acres)	Eastern Section: Indio Station Area (acres)	Total Area of Vegetation Community (acres)
Pasture	5.90	49.08	70.00	—	—	—	124.98
Riverine	—	43.89	—	14.18	—	—	58.08
Urban	9,379.67	1,249.55	898.06	3,948.19	670.08	2,508.12	18,653.68
Valley foothill riparian	58.53	380.37	—	5.72	—	—	444.63

Source: Appendix G of this Tier 1/Program EIS/EIR

Sensitive Natural Communities

Sensitive natural communities represent rare vegetation types or have limited distribution statewide or within a county or region. These communities include riparian areas that are jurisdictional to CDFW under Section 1600 of the California Fish and Game Code, and they are often vulnerable to the environmental effects of projects. A list of sensitive natural communities in California is maintained by CDFW in the Vegetation Classification and Mapping Program—Natural Communities List. Table 3.8-4 lists the sensitive natural communities with potential to occur within the Tier 1/Program EIS/EIR Study Area. A description of each of these communities is provided in Appendix G of this Tier 1/Program EIS/EIR. Mapping of sensitive natural communities requires a field assessment of the dominant plant species within each vegetation community type. Therefore, the potential presence of sensitive natural communities in the Tier 1/Program EIS/EIR Study Area was assessed based on the broader vegetation community categories for which mapping exists.

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Table 3.8-4. Sensitive Natural Communities with Potential to Occur within the Tier 1/Program EIS/EIR Study Area

Sensitive Natural Community (Alliance) ^a	State Rarity Rank ^b	Vegetation Community	Western Section	Eastern Section: Non-Station Area	Eastern Section: Loma Linda Station Area	Eastern Section: Pass Area Station Area	Eastern Section: Mid-Valley Station Area	Eastern Section: Indio Station Area	Eastern Section: Coachella Station Area
<i>Juglans californica</i> Woodland Alliance California walnut woodland	S3	Valley foothill riparian, coastal sage, mixed chaparral	P	P	P	P	—	—	—
<i>Lepidospartum squamatum</i> Shrubland Alliance Scalebroom scrub	S3	Desert wash	—	P	—	P	—	—	—
<i>Platanus racemosa</i> Woodland Alliance California sycamore woodland	S3	Valley foothill riparian	P	P	—	P	—	—	—
<i>Populus fremontii</i> Forest Alliance Fremont cottonwood forest	S3	Valley foothill riparian	P	P	—	P	—	—	—

Sensitive Natural Community (Alliance) ^a	State Rarity Rank ^b	Vegetation Community	Western Section	Eastern Section: Non-Station Area	Eastern Section: Loma Linda Station Area	Eastern Section: Pass Area Station Area	Eastern Section: Mid-Valley Station Area	Eastern Section: Indio Station Area	Eastern Section: Coachella Station Area
<i>Salix gooddingii</i> Woodland Alliance Black willow thickets	S3	Valley foothill riparian	P	P	—	P	—	—	—

Notes:

^a Alliances names follow *A Manual of California Vegetation* (Sawyer et al. 2009).

^b Rarity ranks are taken from *A Manual of California Vegetation* (Sawyer et al. 2009). Ranks of S1, S2, and S3 are considered rare and threatened statewide (Sawyer et al. 2009, p. 46) and of special concern by CDFW.

CDFW=California Department of Fish and Wildlife; P=potential to occur

Build Alternative Option 1 (Coachella Terminus)

As summarized in Table 3.8-3, five sensitive natural communities have the potential to occur within the Tier 1/Program EIS/EIR Study Area under Build Alternative Option 1. These sensitive natural communities include California walnut woodland, scalebroom scrub, California sycamore woodland, Fremont cottonwood forest, and black willow thickets. All have state rarity ranks of S3, which indicates that they are “vulnerable and at moderate risk of extinction or elimination due to a restricted range, relatively few populations or occurrences, recent and widespread declines, or other factors.” These sensitive natural communities have the potential to occur in valley foothill riparian, coastal scrub, mixed chaparral, and desert wash habitats, respectively. Within the Western Section, California walnut woodland, California sycamore woodland, Fremont cottonwood forest, and black willow thickets have the potential to occur based on the vegetation community present. Within the Eastern Section, specifically the non-station areas and the Pass Area Station Area, all five sensitive natural communities have the potential to occur. Within the Loma Linda Station Area, California walnut woodland has the potential to occur. Within the Mid-Valley Station Area, Indio Station Area, and Coachella Station Area, none of the five sensitive natural communities have the potential to occur based on the vegetation community present.

Build Alternative Option 2 (Indio Terminus)

Sensitive natural communities within Build Alternative Option 2 are the same as Build Alternative Option 1.

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

Sensitive natural communities within Build Alternative Option 3 are the same as Build Alternative Option 1.

Special-Status Plant Species

Federal and state regulations protect imperiled plant species and facilitate the recovery of such species and the ecosystems upon which they depend. Federal and state regulations also provide guidance on how a species is listed and designations (endangered, threatened, etc.) of a species' sensitivity.

Table 3.8-5 lists the special-status plant species with the potential to occur within the Tier 1/Program EIS/EIR Study Area. Figure 3.8-2 shows the critical habitat for listed special-status plant species located within the Tier 1/Program EIS/EIR Study Area.

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Table 3.8-5. Special-Status Plant with Potential to Occur within the Tier 1/Program EIS/EIR Study Area

Common Name (Scientific Name)	Federal/ State/ CRPR Status ^a	Western Section	Eastern Section: Non-Station Area	Eastern Section: Loma Linda Station Area	Eastern Section: Pass Area Station Area	Eastern Section: Mid-Valley Station Area	Eastern Section: Indio Station Area	Eastern Section: Coachella Station Area
Abrams' spurge (<i>Euphorbia abramsiana</i>)	CRPR 2B.2	P	P	—	P	P	P	P
Brand's star phacelia (<i>Phacelia stellaris</i>)	CRPR 1B.1	P	—	—	—	—	—	—
Braunton's milk-vetch (<i>Astragalus brauntonii</i>)	FE, CRPR 1B.1	P	P	—	—	P	P	—
Chaparral sand-verbena (<i>Abronia villosa</i> var. <i>aurita</i>)	CRPR 1B.1	P	P	P	P	—	—	—
Cliff spurge (<i>Euphorbia misera</i>)	CRPR 2B.2	—	P	—	—	—	—	—
Coachella Valley milk-vetch (<i>Astragalus lentiginosus</i> var. <i>cochellae</i>)	FE, CRPR 1B.2	—	P	—	P	P	P	P
Desert spike-moss (<i>Selaginella eremophila</i>)	CRPR 2B.2	—	P	—	—	—	—	—
Flat-seeded surge (<i>Euphorbia platysperma</i>)	CRPR 1B.2	—	P	—	—	P	—	—
Harwood's eriastrum (<i>Eriastrum harwoodii</i>)	CRPR 1B.2	—	P	—	—	P	—	—
Intermediate mariposa lily (<i>Calochortus weedii</i> var. <i>intermedius</i>)	CRPR 1B.2	P	—	—	—	—	—	—

Common Name (Scientific Name)	Federal/ State/ CRPR Status ^a	Western Section	Eastern Section: Non-Station Area	Eastern Section: Loma Linda Station Area	Eastern Section: Pass Area Station Area	Eastern Section: Mid-Valley Station Area	Eastern Section: Indio Station Area	Eastern Section: Coachella Station Area
Latimer's woodland-gilia (<i>Saltugilia latimeri</i>)	CRPR 1B.2	—	P	—	P	—	—	—
Little San Bernardino Mtns. Linanthus (<i>Linanthus maculatus</i> ssp. <i>maculatus</i>)	CRPR 1B.2	—	P	—	—	P	—	—
Many-stemmed dudleya (<i>Dudleya multicaulis</i>)	CRPR 1B.2	P	—	—	—	—	—	—
Nevin's barberry (<i>Berberis nevinii</i>)	FE, SE/CRPR 1B.1	P	P	P	—	—	—	—
Parry's spineflower (<i>Chorizanthe parryi</i> var. <i>parryi</i>)	CRPR 1B.1	P	P	P	P	—	—	—
Purple stemodia (<i>Stemodia durantifolia</i>)	CRPR 2B.1	—	P	—	—	P	—	—
Santa Ana River woollystar (<i>Eriastrum densifolium</i> ssp. <i>sanctorum</i>)	FE, SE/CRPR 1B.1	P	P	—	—	—	—	—
Smooth tarplant (<i>Centromadia pungens</i> ssp. <i>laevis</i>)	CRPR 1B.1	P	P	—	P	—	—	—
Snake cholla (<i>Cylindropuntia californica</i> var. <i>californica</i>)	CRPR 1B.2	P	—	—	—	—	—	—
Three-ribbed milk-vetch (<i>Astragalus tricarinatus</i>)	FE, CRPR 1B.2	—	P	—	—	P	—	—

Common Name (Scientific Name)	Federal/ State/ CRPR Status ^a	Western Section	Eastern Section: Non-Station Area	Eastern Section: Loma Linda Station Area	Eastern Section: Pass Area Station Area	Eastern Section: Mid-Valley Station Area	Eastern Section: Indio Station Area	Eastern Section: Coachella Station Area
White-bracted spineflower (<i>Chorizanthe xanti</i> var. <i>leucotheca</i>)	CRPR 1B.2	—	P	—	P	—	—	—
Yucaipa onion (<i>Allium marvinii</i>)	CRPR 1B.2	—	P	—	P	—	—	—

Notes:

CRPR=California Rare Plant Rank; P=potential to occur

^a **Federal**

FE=Federally listed as Endangered

FP=Federally listed as Protected

State

SE=State listed as Endangered

CRPR

1B=Rare or endangered in California and elsewhere

2B=Rare or endangered in California, more common elsewhere

Threat Ranks:

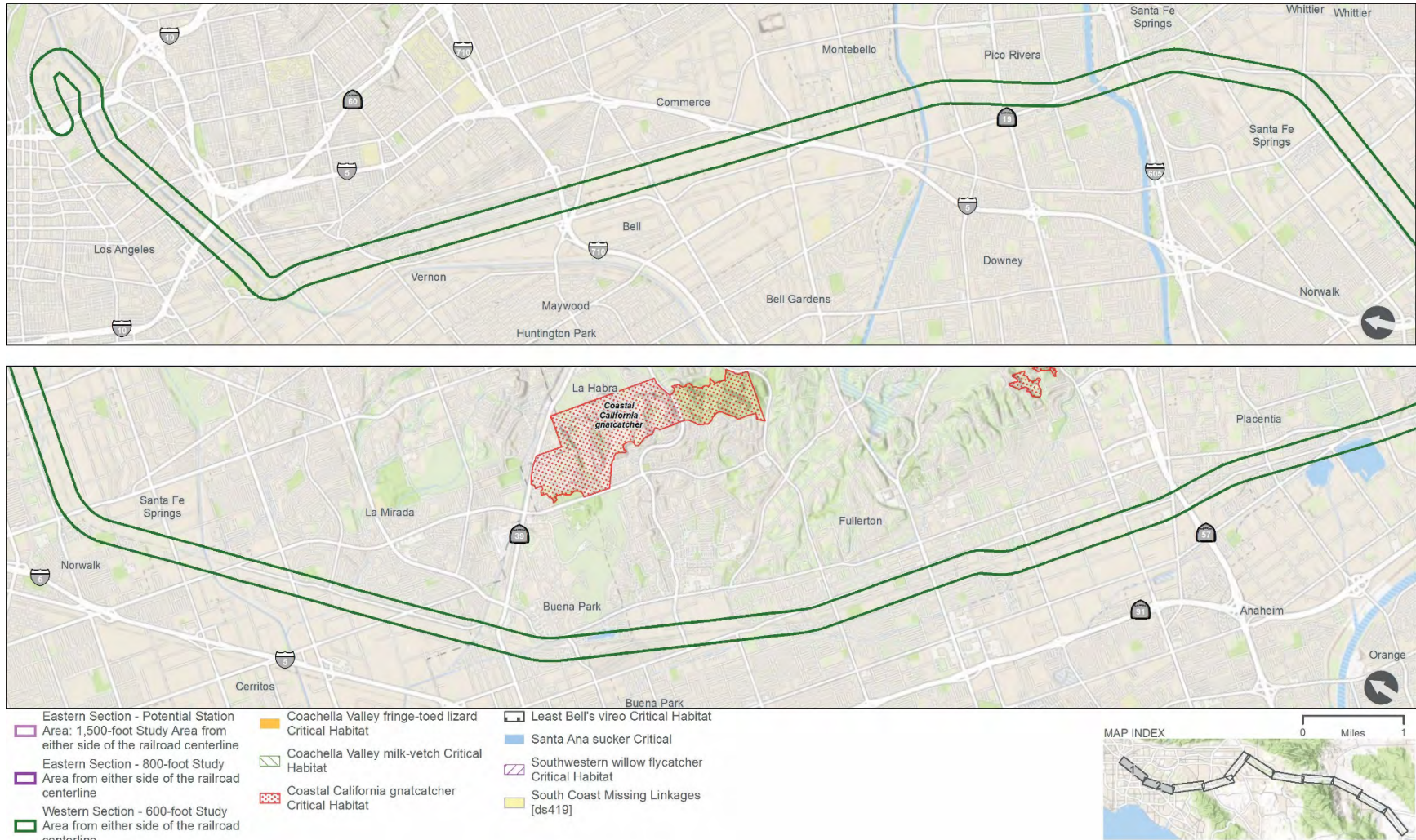
.1=seriously endangered in California

.2=fairly endangered in California

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Figure 3.8-2. Critical Habitat within the Tier 1/Program EIS/EIR Study Area

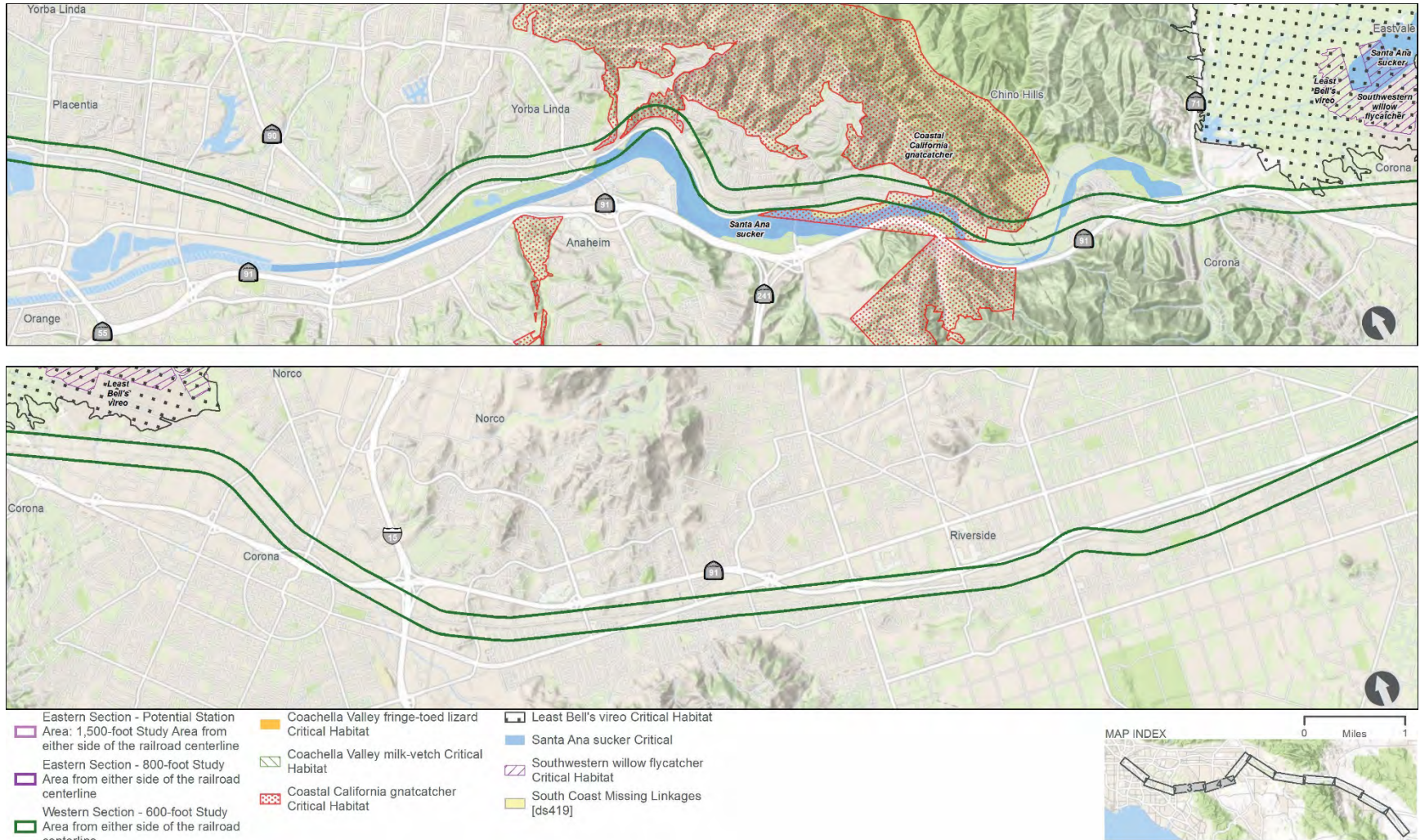
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Figure 3.8-2. Critical Habitat within the Tier 1/Program EIS/EIR Study Area

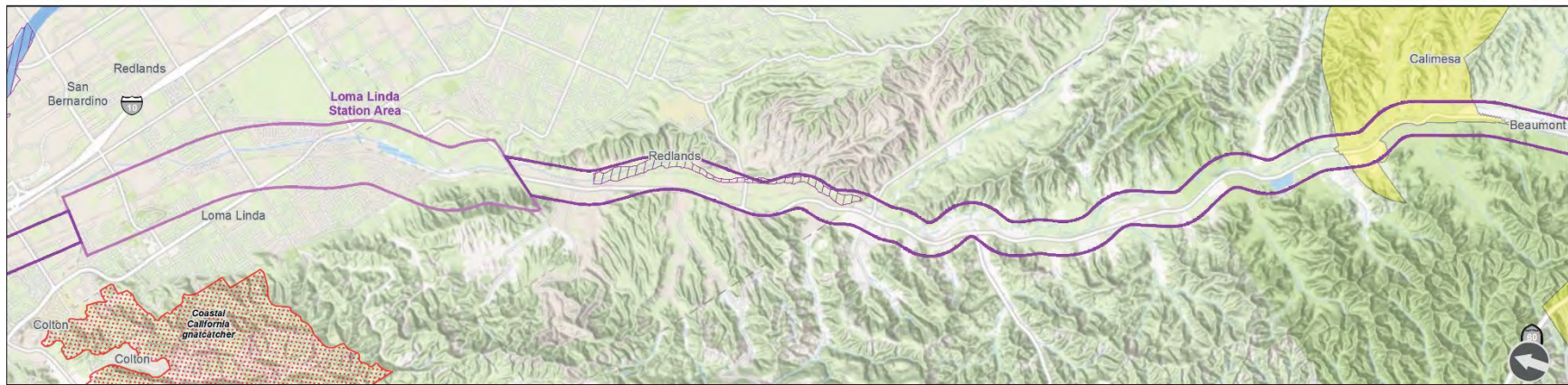
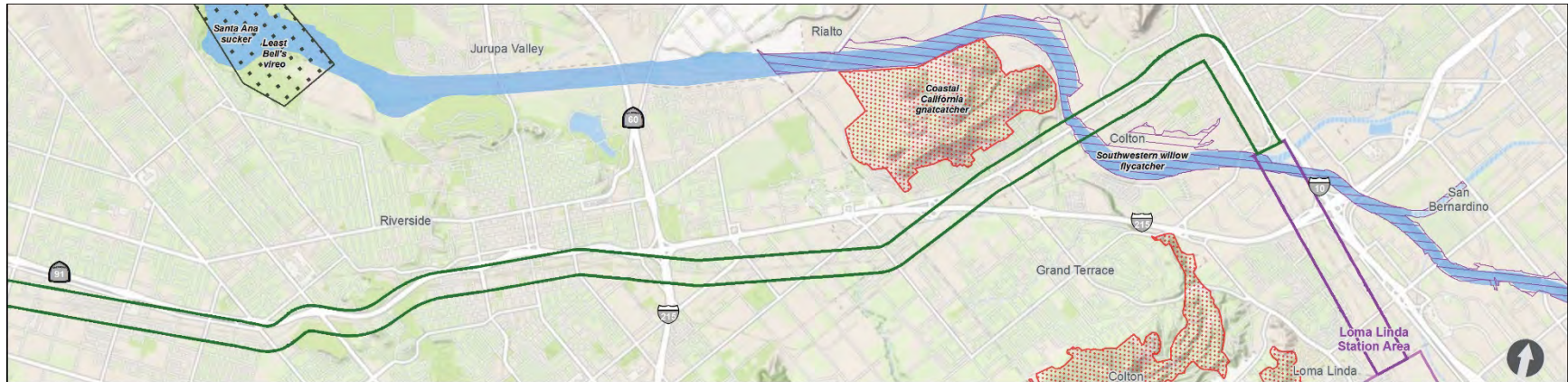
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Figure 3.8-2. Critical Habitat within the Tier 1/Program EIS/EIR Study Area

(Page 3 of 6)



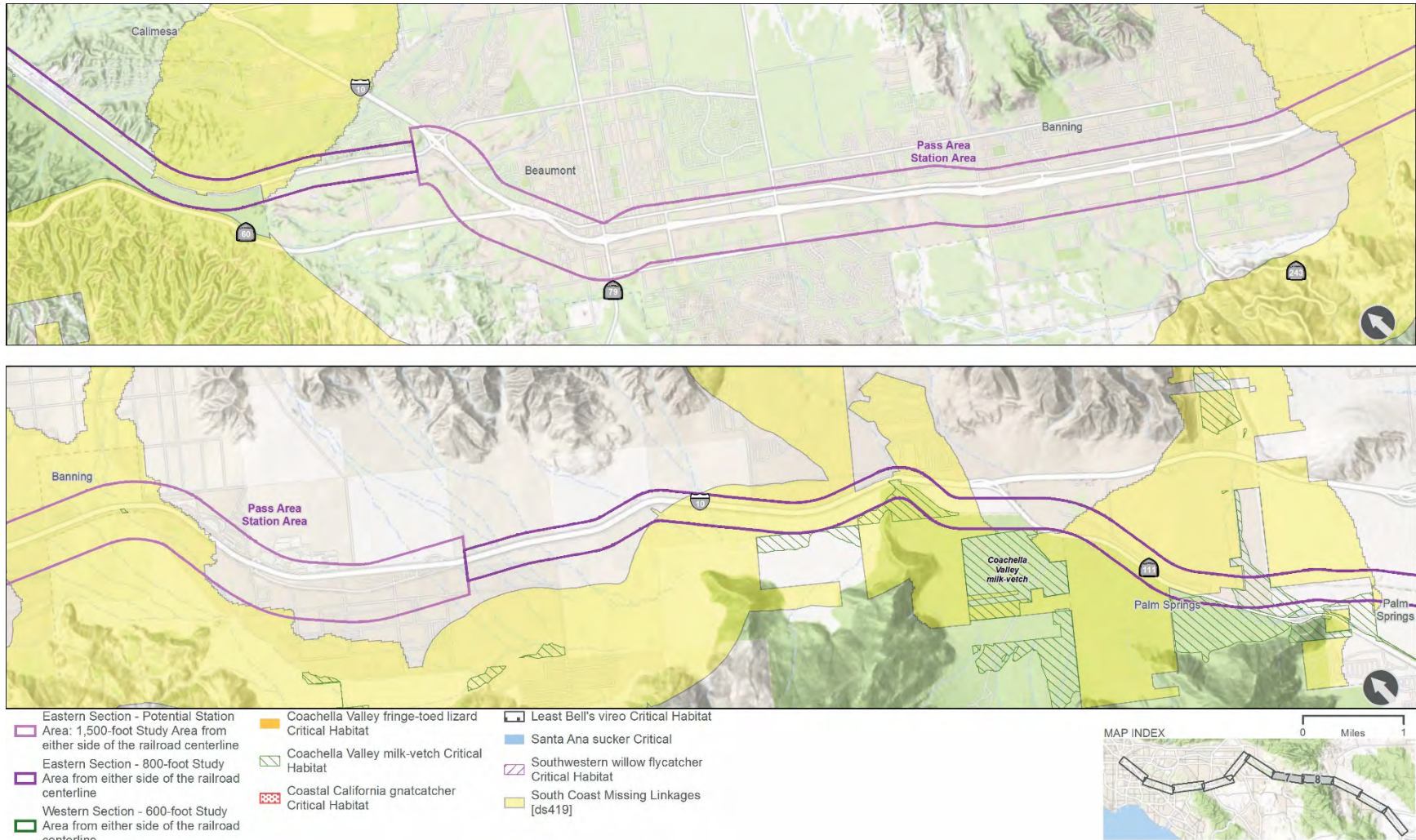
- Eastern Section - Potential Station Area: 1,500-foot Study Area from either side of the railroad centerline
- Eastern Section - 800-foot Study Area from either side of the railroad centerline
- Western Section - 600-foot Study Area from either side of the railroad centerline
- Coachella Valley fringe-toed lizard Critical Habitat
- Coachella Valley milk-vetch Critical Habitat
- Coachella Valley gnatcatcher Critical Habitat
- Least Bell's vireo Critical Habitat
- Santa Ana sucker Critical
- Southwestern willow flycatcher Critical Habitat
- South Coast Missing Linkages [ds419]



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Figure 3.8-2. Critical Habitat within the Tier 1/Program EIS/EIR Study Area

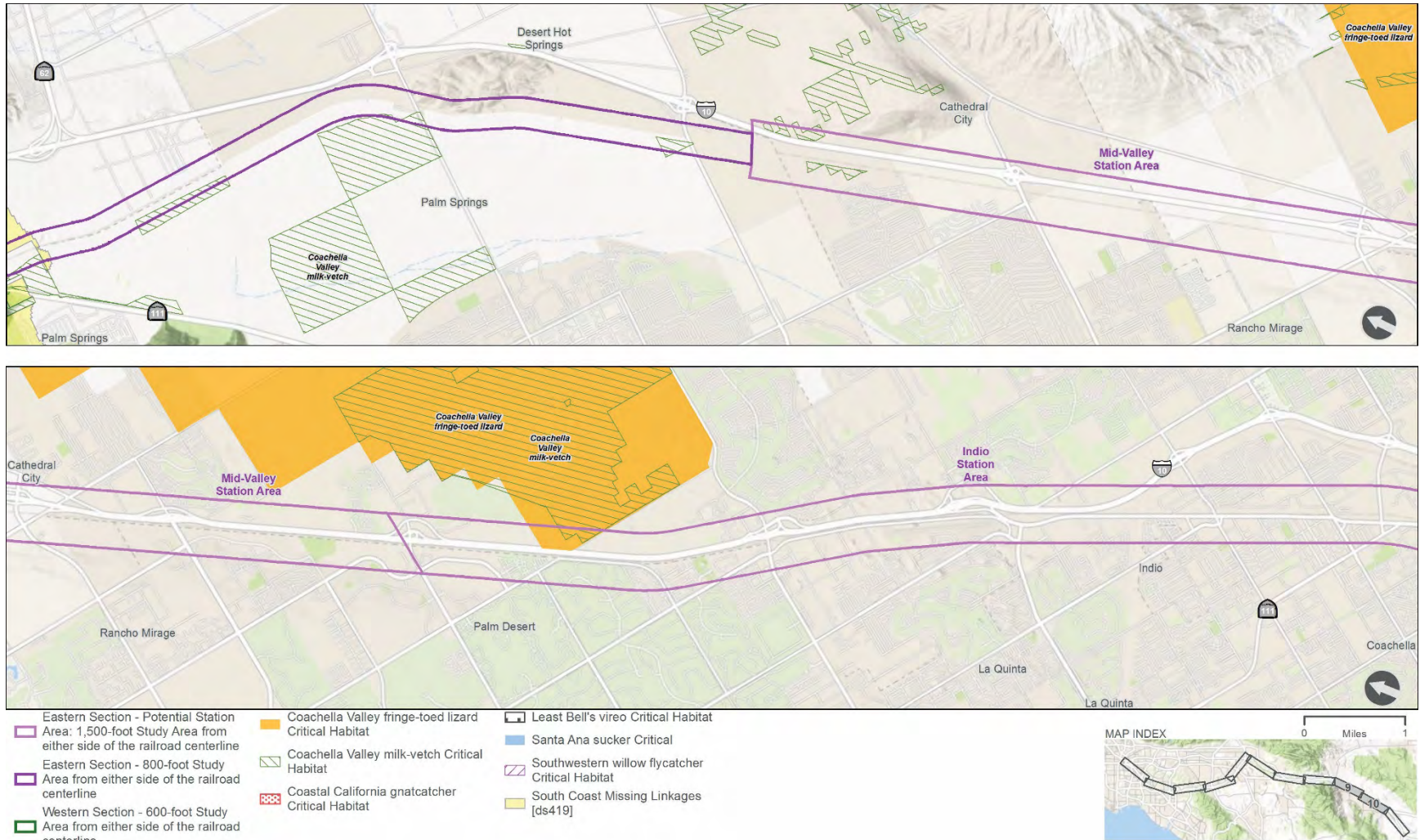
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Figure 3.8-2. Critical Habitat within the Tier 1/Program EIS/EIR Study Area

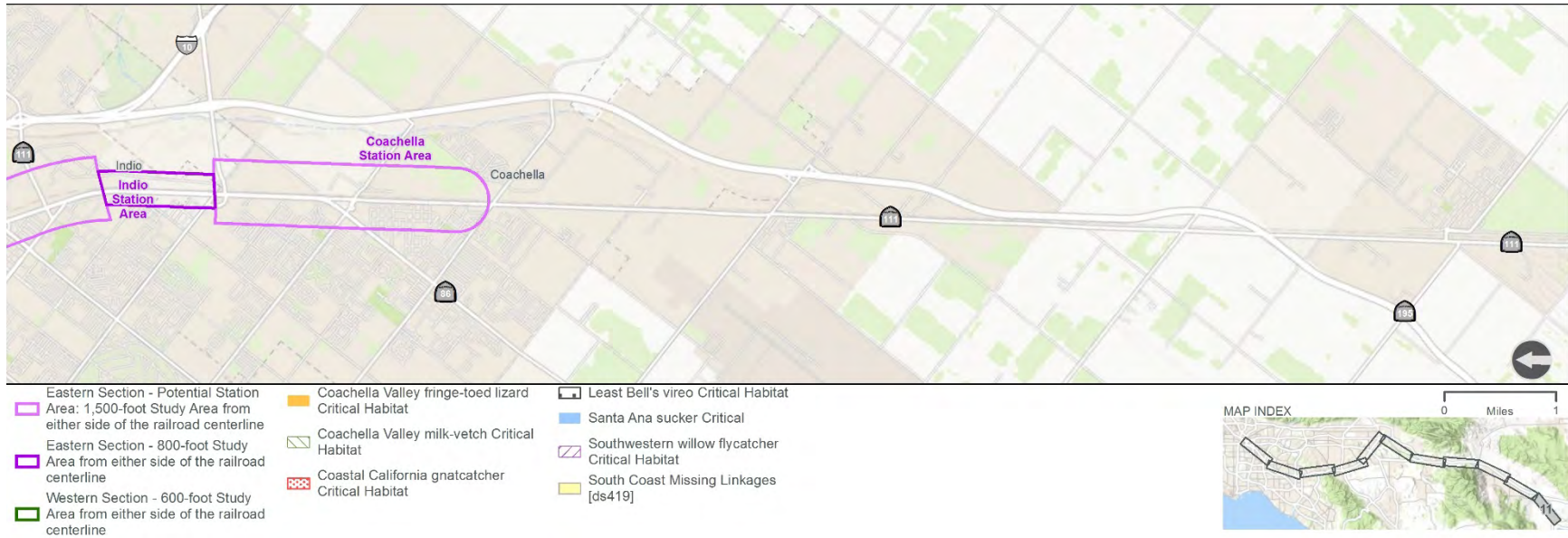
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Figure 3.8-2. Critical Habitat within the Tier 1/Program EIS/EIR Study Area

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Build Alternative Option 1 (Coachella Terminus)

As summarized in Table 3.8-5, 22 special-status plant species have the potential to occur within the Tier 1/Program EIS/EIR Study Area under Build Alternative Option 1. Of these 22 special-status plant species, five special-status plant species (Nevin's barberry, Santa Ana River woollystar, Three-ribbed milk-vetch, Braunton's milk-vetch, and the Coachella Valley milk-vetch) are federally endangered and two special-status plant species (Nevin's barberry and Santa Ana River woollystar) are state endangered. There were no federally or state threatened species identified within the Tier 1/Program EIS/EIR Study Area under Build Alternative Option 1.

Within the Western Section, Nevin's barberry, Santa Ana River woollystar, and Brauton's milk-vetch have the potential to be present. Within the Eastern Section, the following endangered special-status plant species have the potential to be present:

- **Non-Station Areas.** All five federally endangered and two state endangered plant species have the potential to be present. Designated critical habitat for the Coachella Valley milk-vetch is present within the non-station area between the Pass Area Station Area and Mid-Valley Station Area.
- **Loma Linda Station Area.** Nevin's barberry has the potential to be present. No designated critical habitat for special-status plant species is located within the Loma Linda Station Area.
- **Pass Area Station Area.** Coachella Valley milk-vetch has the potential to be present. No designated critical habitat for special-status plant species is located within the Pass Area Station Area.
- **Mid-Valley Station Area.** Braunton's milk-vetch, Coachella Valley milk-vetch, and Three-ribbed milk-vetch have the potential to be present. Designated critical habitat for the Coachella Valley milk-vetch is present within the Mid-Valley Station Area.
- **Indio Station Area.** Braunton's milk-vetch and Coachella Valley milk-vetch have the potential to be present. Designated critical habitat for the Coachella Valley milk-vetch is present within the Indio Station Area.
- **Coachella Station Area.** Coachella Valley milk-vetch has the potential to be present. No designated critical habitat for special-status plant species is located within the Coachella Station Area.

Build Alternative Option 2 (Indio Terminus)

Although Build Alternative Option 2 would not include the Coachella Station Area, which contains the potential for the Coachella Valley milk-vetch to be present, there are other Eastern Section stations that also have the potential for the Coachella Valley milk-vetch to be present. Therefore, special-status plant species with the potential to occur within Build Alternative Option 2 are the same as Build Alternative Option 1.

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

Although Build Alternative Option 3 would not include the Coachella Station Area, which contains the potential for the Coachella Valley milk-vetch to be present, there are other Eastern Section stations that also have the potential for the Coachella Valley milk-vetch to be present. Therefore, special-status plant species with the potential to occur within Build Alternative Option 3 are the same as Build Alternative Option 1.

Special-Status Wildlife Species

Federal and state regulations protect imperiled wildlife species and facilitate the recovery of such species and the ecosystems upon which they depend. Federal and state regulations also provide guidance on how a species is listed and designations (endangered, threatened, etc.) of a species' sensitivity. Table 3.8-6 lists the special-status wildlife species as having potential to occur within the Tier 1/Program EIS/EIR Study Area. Figure 3.8-2 shows the critical habitat for listed special-status wildlife species located within the Tier 1/Program EIS/EIR Study Area.

Table 3.8-6. Special-Status Wildlife with Potential to Occur within the Tier 1/Program EIS/EIR Study Area

Common Name (Scientific Name)	Federal/ State Status ^a	Western Section	Eastern Section: Non-Station Area	Eastern Section: Loma Linda Station Area	Eastern Section: Pass Area Station Area	Eastern Section: Mid-Valley Station Area	Eastern Section: Indio Station Area	Eastern Section: Coachella Station Area
Invertebrates								
Delhi Sands flower-loving fly (<i>Rhaphiomidas terminates abdominalis</i>)	FE	P	P	—	—	—	—	—
Riverside fairy shrimp (<i>Streptocephalus woottoni</i>)	FE	P	—	—	—	—	—	—
Vernal pool fairy shrimp (<i>Branchinecta lynchi</i>)	FT	P	P	—	—	—	—	—
Fish								
Arroyo chub (<i>Gila orcuttii</i>)	SSC	P	P	—	—	—	—	—
Desert pupfish (<i>Cyprinodon macularius</i>)	FE, SE	—	P	—	P	—	—	—
Santa Ana speckled dace (<i>Rhinichthys osculus</i>)	SSC	P	P	—	P	—	—	—
Santa Ana sucker (<i>Catostomus santaanae</i>)	ST	P	P	—	—	—	—	—
Amphibians								
California red-legged frog (<i>Rana draytonii</i>)	FT, SSC	P	P	P	—	—	—	—

Common Name (Scientific Name)	Federal/ State Status ^a	Western Section	Eastern Section: Non-Station Area	Eastern Section: Loma Linda Station Area	Eastern Section: Pass Area Station Area	Eastern Section: Mid-Valley Station Area	Eastern Section: Indio Station Area	Eastern Section: Coachella Station Area
Coast Range newt (<i>Taricha torosa</i>)	SSC	P	—	—	—	—	—	—
Western spadefoot (<i>Spea hammondi</i>)	SSC	P	P	P	—	—	—	—
Reptiles								
California glossy snake (<i>Arizona elegans occidentalis</i>)	SSC	P	P	—	P	—	P	—
Coachella Valley fringe-toed lizard (<i>Uma inornata</i>)	FT, SE	—	P	—	—	P	P	—
Coast horned lizard (<i>Phrynosoma blainvillii</i>)	SSC	P	P	—	—	P	—	—
Coast patched-nosed snake (<i>Salvadora hexalepis virgultea</i>)	SSC	P	P	P	P	—	—	—
Coastal whiptail (<i>Aspidoscelis tigris stejnegeri</i>)	SSC	P	P	P	P	—	—	—
Desert tortoise (<i>Gopherus agassizii</i>)	FT, ST	—	P	—	P	P	P	P
Flat-tailed horned lizard (<i>Phrynosoma mcallii</i>)	SSC	—	P	—	P	P	—	—
Red diamond rattlesnake (<i>Crotalus ruber</i>)	SSC	P	P	P	P	—	—	—

Common Name (Scientific Name)	Federal/ State Status ^a	Western Section	Eastern Section: Non-Station Area	Eastern Section: Loma Linda Station Area	Eastern Section: Pass Area Station Area	Eastern Section: Mid-Valley Station Area	Eastern Section: Indio Station Area	Eastern Section: Coachella Station Area
San Diego mountain kingsnake (<i>Lampropeltis zonata pulchra</i>)	SSC	P	—	—	—	—	—	—
Southern California legless lizard (<i>Anniella stebbinsi</i>)	SSC	P	P	P	—	—	—	—
Two-striped garter snake (<i>Thamnophis hammondi</i>)	SSC	P	P	P	—	—	—	—
Western pond turtle (<i>Emys marmorata</i>)	SSC	P	P	P	—	—	—	—
Birds								
American peregrine falcon (<i>Falco peregrinus anatum</i>)	FP	P	P	P	P	P	P	P
Bald eagle (<i>Haliaeetus leucocephalus</i>)	Bald and Golden Eagle Protection Act, F Delisted SE/FPS	P	P	—	—	—	—	—
Coastal cactus wren (<i>Campylorhynchus brunneicapillus sandiegensis</i>)	SSC	P	—	—	—	—	—	—
Coastal California gnatcatcher (<i>Polioptila californica californica</i>)	FT, SSC	P	P	P	—	—	—	—
Ferruginous hawk (<i>Buteo regalis</i>)	SSC	P	P	P	P	P	P	P

Common Name (Scientific Name)	Federal/ State Status ^a	Western Section	Eastern Section: Non-Station Area	Eastern Section: Loma Linda Station Area	Eastern Section: Pass Area Station Area	Eastern Section: Mid-Valley Station Area	Eastern Section: Indio Station Area	Eastern Section: Coachella Station Area
Golden eagle (<i>Aquila chrysaetos</i>)	Bald and Golden Eagle Protection Act FP	P	P	P	—	—	—	—
Grasshopper sparrow (<i>Ammodramus savannarum perpallidus</i>)	SSC	P	—	—	—	—	—	—
Least Bell's vireo (<i>Vireo bellii pusillus</i>)	FE, SE	P	P	—	—	—	—	—
Least bittern (<i>Ixobrychus exilis</i>)	SSC	P	P	—	—	—	—	—
Loggerhead shrike (<i>Lanius ludovicianus</i>)	SSC	P	P	P	P	P	P	P
Long-eared owl (<i>Asio otus</i>)	SSC	P	P	—	—	—	—	—
Northern harrier (<i>Circus hudsonius</i>)	SSC	P	P	P	—	—	—	—
Purple martin (<i>Progne subis</i>)	SSC	P	P	—	—	—	—	—
Southwestern willow flycatcher (<i>Empidonax trallii extimus</i>)	FE, SE	P	P	—	—	—	—	—
Swainson's hawk (<i>Buteo swainsoni</i>)	ST	P	P	P	P	P	P	P

Common Name (Scientific Name)	Federal/ State Status ^a	Western Section	Eastern Section: Non-Station Area	Eastern Section: Loma Linda Station Area	Eastern Section: Pass Area Station Area	Eastern Section: Mid-Valley Station Area	Eastern Section: Indio Station Area	Eastern Section: Coachella Station Area
Tricolored blackbird (<i>Agelaius tricolor</i>)	ST	P	P	—	—	—	—	—
Western burrowing owl (<i>Athene cunicularia</i>)	SSC	P	P	P	P	P	P	P
Western yellow-billed cuckoo (<i>Coccyzus americanus occidentalis</i>)	FE, SE	P	—	—	—	—	—	—
White-tailed kite (<i>Elanus leucurus</i>)	FP	P	P	—	—	—	—	—
Yellow rail (<i>Coturnicops noveboracensis</i>)	SSC	P	—	—	—	—	—	—
Yellow warbler (<i>Setophaga petechia</i>)	SSC	P	P	P	—	—	—	—
Yellow-breasted chat (<i>Icteria virens</i>)	SSC	P	P	—	—	—	—	—
Mammals								
American badger (<i>Taxidea taxus</i>)	SSC	P	P	P	P	P	P	P
Big free-tailed bat (<i>Nyctinomops macrotis</i>)	SSC	—	P	—	P	—	—	—
Desert bighorn sheep (<i>Ovis canadensis nelsoni</i>)	FP	—	P	—	P	—	—	—

Common Name (Scientific Name)	Federal/ State Status ^a	Western Section	Eastern Section: Non-Station Area	Eastern Section: Loma Linda Station Area	Eastern Section: Pass Area Station Area	Eastern Section: Mid-Valley Station Area	Eastern Section: Indio Station Area	Eastern Section: Coachella Station Area
Dulzura pocket mouse (<i>Chaetodipus californicus femoralis</i>)	SSC	P	P	—	—	—	—	—
Los Angeles pocket mouse (<i>Perognathus longimembris brevinasus</i>)	SSC	P	P	—	—	—	—	—
Mexican long-tongued bat (<i>Choeronycteris mexicana</i>)	SSC	—	P	—	P	—	—	—
Northwestern San Diego pocket mouse (<i>Chaetodipus fallax fallax</i>)	SSC	P	P	—	P	P	P	P
Pallid bat (<i>Antrozous pallidus</i>)	SSC	P	P	P	—	—	—	—
Pallid San Diego pocket mouse (<i>Chaetodipus fallax pallidus</i>)	SSC	P	P	—	P	P	P	P
Palm Springs pocket mouse (<i>Perognathus longimembris bangsi</i>)	SSC	—	P	—	P	P	—	—
Palm Springs round-tailed ground squirrel (<i>Xerospermophilus tereticaudu chlorus</i>)	SSC	—	P	—	P	P	—	—
Peninsular bighorn sheep (<i>Ovis canadensis nelsoni</i> pop. 2)	FE, ST/FPS	—	P	—	P	—	—	—

Common Name (Scientific Name)	Federal/ State Status ^a	Western Section	Eastern Section: Non-Station Area	Eastern Section: Loma Linda Station Area	Eastern Section: Pass Area Station Area	Eastern Section: Mid-Valley Station Area	Eastern Section: Indio Station Area	Eastern Section: Coachella Station Area
Pocketed free-tailed bat (<i>Nyctinomops femorosaccus</i>)	SSC	—	P	—	P	—	—	—
San Bernardino kangaroo rat (<i>Dipodomys merriami parvus</i>)	FE, SSC	P	P	—	—	—	—	—
San Diego black-tailed jackrabbit (<i>Lepus californicus bennettii</i>)	SSC	P	P	P	P	P	P	P
San Diego desert woodrat (<i>Neotoma lepida intermedia</i>)	SSC	P	P	—	P	P	P	P
Southern grasshopper mouse (<i>Onychomys torridus ramona</i>)	SSC	P	P	—	P	P	P	P
Stephen's kangaroo rat (<i>Dipodomys stephensi</i>)	FE, ST	P	P	—	P	—	—	—
Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)	SSC	—	P	—	P	—	—	—
Western mastiff bat (<i>Eumops perotis californicus</i>)	SSC	—	P	—	P	—	—	—
Western red bat (<i>Lasiurus blossevillii</i>)	SSC	P	P	—	—	—	—	—

Common Name (Scientific Name)	Federal/ State Status ^a	Western Section	Eastern Section: Non-Station Area	Eastern Section: Loma Linda Station Area	Eastern Section: Pass Area Station Area	Eastern Section: Mid-Valley Station Area	Eastern Section: Indio Station Area	Eastern Section: Coachella Station Area
Western yellow bat (<i>Lasiurus xanthinus</i>)	SSC	P	P	P	P	P	P	P

Notes:

P=potential to occur

^a **Federal**

FE=Federally listed as Endangered

FP=Federally listed as Protected

FT=Federally listed as Threatened

State

SE=State listed as Endangered

ST=State Candidate for listing as Threatened

FPS=Fully Protected Species in California

SSC=Species of Special Concern in California

Build Alternative Option 1 (Coachella Terminus)

As summarized in Table 3.8-6, 66 special-status wildlife species have the potential to occur within the Tier 1/Program EIS/EIR Study Area under Build Alternative Option 1. Of these 66 special-status wildlife species, 9 special-status wildlife species (Delhi Sands flower-loving fly, Riverside fairy shrimp, Desert pupfish, Least Bell's vireo, Southwestern willow flycatcher, Western yellow-billed cuckoo, Peninsular bighorn sheep, San Bernardino kangaroo rat, and Stephen's kangaroo rat) are federally endangered and five special-status wildlife species (Vernal pool fairy shrimp, California red-legged frog, Coachella Valley fringe-toed lizard, Desert tortoise, and Coastal California gnatcatcher) are federally threatened. Six special-status wildlife species (Desert pupfish, Coachella Valley fringe-toed lizard, Bald eagle, Least Bell's vireo, Southwestern willow flycatcher, and Western yellow-billed cuckoo) are state endangered and six special-status wildlife species (Santa Ana sucker, Desert tortoise, Swainson's hawk, Tricolored blackbird, Peninsular bighorn sheep, and Stephen's kangaroo rat) are state threatened.

Within the Western Section, the following endangered and threatened special-status wildlife species have the potential to be present:

- Delhi Sands flower-loving fly
- Riverside fairy shrimp
- Vernal pool fairy shrimp
- Santa Ana sucker
- California red-legged frog
- Bald eagle
- Coastal California gnatcatcher
- Least Bell's vireo
- Southwestern willow flycatcher
- Swainson's hawk
- Tricolored blackbird
- Western yellow-billed cuckoo
- San Bernardino kangaroo rat
- Stephen's kangaroo rat

The Western Section also crosses through designated critical habitat for Santa Ana sucker, Coastal California gnatcatcher, and Southwestern willow flycatcher.

Within the Eastern Section, the endangered and threatened special-status wildlife species have the potential to be present within the following areas:

- **Non-Station Areas:** Delhi Sands flower-loving fly, Vernal pool fairy shrimp, Desert pupfish, Santa Ana sucker, California red-legged frog, Coachella Valley fringe-toed lizard, Desert tortoise, Bald eagle, Coastal California gnatcatcher, Least Bell's vireo, Southwestern willow flycatcher, Swainson's hawk, Tricolored blackbird, Peninsular bighorn sheep, San Bernardino kangaroo rat, and Stephen's kangaroo rat have the potential to be present. Designated critical habitat for the Southwestern willow flycatcher is present within the non-station area between the Loma Linda Station Area and Pass Area Station Area.
- **Loma Linda Station Area:** California red-legged frog, Coastal California gnatcatcher, and Swainson's hawk have the potential to be present. No designated critical habitat for special-status wildlife species is located within the Loma Linda Station Area.
- **Pass Area Station Area:** Desert pupfish, Desert tortoise, Swainson's hawk, Peninsular bighorn sheep, and Stephen's kangaroo rat have the potential to be present. No designated critical habitat for special-status wildlife species is located within the Pass Area Station Area.
- **Mid-Valley Station Area:** Coachella Valley fringe-toed lizard, Desert tortoise, and Swainson's hawk have the potential to be present. No designated critical habitat for special-status wildlife species is located within the Mid-Valley Station Area.
- **Indio Station Area:** Coachella Valley fringe-toed lizard, Desert tortoise, and Swainson's hawk have the potential to be present. Designated critical habitat for the Coachella Valley milk-vetch is present within the Indio Station Area.
- **Coachella Station Area:** Desert tortoise and Swainson's hawk have the potential to be present. No designated critical habitat for special-status wildlife species is located within the Coachella Station Area.

Build Alternative Option 2 (Indio Terminus)

Although Build Alternative Option 2 would not include the Coachella Station Area, which contains the potential for Desert tortoise and Swainson's hawk to be present, there are other Eastern Section stations that also have the potential for these special-status wildlife species to be present. Therefore, special-status wildlife species with the potential to occur within Build Alternative Option 2 are the same as Build Alternative Option 1.

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

Although Build Alternative Option 3 would not include the Coachella Station Area, which contains the potential for Desert tortoise and Swainson's hawk to be present, there are other Eastern Section stations that also have the potential for these special-status wildlife species to be present. Therefore, special-status wildlife species with the potential to occur within Build Alternative Option 3 are the same as Build Alternative Option 1.

Wildlife Movement Corridors

Wildlife movement corridors are linear features connecting large patches of natural open space and provide for animal dispersal or migration, as well as plant dispersal. Movement is essential to wildlife survival, whether it is daily movements to find food, water, and shelter or seasonal migration to find favorable seasonal conditions and mates. Movement is also essential for gene flow, recolonizing unoccupied habitat, and species to shift their geographic range in response to climate change. Large mammals—such as mule deer, desert bighorn sheep, coyote, and mountain lion—may range widely across the landscape in search of food and water or following seasonal movement patterns.

Drainage channels are often used as corridors for wildlife movement, providing both cover and forage. Natural and man-made barriers to wildlife movement may prevent animals from reaching important resources and/or limit the availability of habitats that would otherwise become occupied.

Man-made features such as highways, fences, railroads, and canals found throughout the Tier 1/Program EIS/EIR Study Area may become partial or complete barriers to movement of some wildlife species. Major transportation corridors in the vicinity of the Build Alternative Options include I-10, Highway 111, Highway 79, and the existing railroad track. The effect of highways as barriers to large mammal movements may be attributed to ROW fencing, traffic volume, noise, human presence, and possibly the speed of traffic. Additionally, surrounding land uses may reduce wildlife access to traditional movement corridors. Animal movements may be restricted by areas of sparse vegetation cover, especially in areas of human activity. Though most animals would typically move across the landscape using natural corridors such as washes, some individuals are also likely to cross open roadways and railroads, increasing the potential for vehicle/train-wildlife collisions.

Several planning efforts have been undertaken to address the effects of development on wildlife movement corridors and identify opportunities to preserve and restore habitat connectivity. One of these planning efforts, known as the South Coast Missing Linkages Project, was developed through a collaboration between federal, state, and local partners to identify and conserve the highest-priority wildlife movement linkages in the South Coast Ecoregion, which encompasses portions of the Tier 1/Program EIS/EIR Study Area. This planning effort incorporated advanced planning techniques and the collaboration of experts in biology and conservation design, resulting in the development of a

comprehensive plan. The comprehensive plan identified a regional network that would maintain and restore critical linkages between existing blocks of habitat that are either currently protected or could be protected in the future. Figure 3.8-2 shows where these potential linkages are located in relation to the Tier 1/Program EIS/EIR Study Area.

Build Alternative Option 1 (Coachella Terminus)

There are no identified linkages within the Western Section of the Program Corridor under Build Alternative Option 1. Within the Eastern Section of the Program Corridor under Build Alternative Option 1, the Tier 1/Program EIS/EIR Study Area crosses or bisects through San Bernardino-San Jacinto Connection (generally in the area between the Loma Linda Station Area and Mid-Valley Station Area for approximately 13 miles). The San Bernardino-San Jacinto Connection was identified as a key wildlife movement linkage between the San Bernardino Mountains and the San Jacinto Mountains (Penrod et al. 2005). The linkage design of the San Bernardino-San Jacinto Connection has five routes to accommodate diverse species and ecosystem functions and connect large habitat blocks within the San Bernardino National Forest in the San Bernardino Mountains and the San Jacinto Mountains. Approximately 29 percent of the lands within the linkage are under some form of protection. Much of the unprotected lands within the linkage could be protected through the Western Riverside MSHCP and the Coachella Valley MSHCP, as the Western Riverside County Regional Conservation Authority (for the Western Riverside MSHCP) and the Coachella Valley Association of Governments (for the Coachella Valley MSHCP) continue to acquire lands over the life of each MSHCP to meet the MSHCP objectives. Although there are transportation facilities that pose barriers to wildlife movement in the Tier 1/Program EIS/EIR Study Area, there are several existing structures that accommodate various levels of animal movement within the San Bernardino-San Jacinto Connection. There are several crossing structures where the San Gorgonio River flows under I-10, a series of undercrossings for Stubbe Wash, and a series of undercrossings to accommodate the Whitewater River crossing under I-10.

Build Alternative Option 2 (Indio Terminus)

Wildlife movement corridors within Build Alternative Option 2 are the same as Build Alternative Option 1.

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

Wildlife movement corridors within Build Alternative Option 3 are the same as Build Alternative Option 1.

3.8.5 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 related to biological resources would be anticipated as a result of constructing any of the Build Alternative Options.

Most effects related to biological resources would occur during construction when sensitive plant communities or habitat is disturbed from clearing for construction; placement of permanent structures (e.g., track, stations); staging of equipment; and stockpiling of soil, ballast, or other construction materials. Other short-term construction-related effects on adjacent habitats and corresponding wildlife could be caused by noise, vibration, and air pollutions from construction equipment and activities. Operational effects on biological resources could result in an increased strike risk to wildlife from the additional rail traffic along the rail line. Additionally, construction of new tracks on railbeds elevated above areas crossing floodplains could create barriers to wildlife movement.

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 of rail improvements associated with this service-level evaluation. Because no physical changes would occur, no effects on biological resources are anticipated beyond those that could occur due to other approved projects.

Build Alternative Options 1, 2, and 3

Sensitive Vegetation Community Effects

CONSTRUCTION

Western Section. The Build Alternative Options would not require construction of additional rail or station infrastructure in the Western Section of the Program Corridor because the existing railroad and stations from LAUS to Colton would be used. When compared with the No Build Alternative, short-term/temporary effects associated with sensitive vegetation communities would be negligible because no additional construction activities are planned within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. As summarized in Table 3.8-2 and Table 3.8-3, there are multiple sensitive vegetation communities with the potential to occur within the Eastern Section of the Build Alternative Options. Depending on the location of the rail infrastructure improvements and station facilities, there is the potential for construction activities to affect these sensitive vegetation communities. Effects on sensitive vegetation communities may include:

- Erosion, siltation, and runoff into natural and constructed watercourses
- Soil and water contamination from construction equipment leaks
- Construction dust affecting plants by reducing their photosynthetic capability (especially during flowering periods)
- Altered hydrology that could change the wetland functions of aquatic habitats
- Changes in surface water resources potentially resulting from changes in groundwater flow
- Increased risk of fire (e.g., construction equipment use and smoking by construction workers) in adjacent open spaces
- Habitat degradation through fragmentation and changes in habitat heterogeneity
- Introduction of noxious plant species (non-native, detrimental species) resulting from ground disturbance

If a passenger rail system is constructed and operated within the existing rail ROW, no ROW acquisitions would be required. However, the Tier 1/Program EIS/EIR Study Area allows for infrastructure and station facilities to be located beyond the limits of the existing rail ROW, which would require acquisition of land that may contain sensitive vegetation communities. The properties that would be affected by the future construction and operation of a passenger rail system, and to what extent, cannot be determined at this time. Therefore, this Tier 1/Program EIS/EIR evaluation does not identify the specific effects on sensitive vegetation communities at specific sites because the sites where infrastructure and station improvements would be constructed have not yet been selected.

The Tier 2/Project-level analysis would evaluate site-specific impacts associated with sensitive vegetation communities. When compared with the No Build Alternative, Build Alternative Option 1 could have a substantial effect on sensitive vegetation communities 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 substantial 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 would be considered substantial 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. During operation, existing maintenance activities that would occur within the ROW along the Western Section route would be in areas where the natural ecosystem has already been disturbed and the Program Corridor is heavily trafficked. Effects associated with the Western Section of Build Alternative Options 1, 2, and 3 on sensitive vegetation communities would be negligible when compared with the No Build Alternative.

Eastern Section. Operational effects are anticipated to be limited to maintenance of culverts, bridges, embankments, and station areas under Build Alternative Options 1, 2, and 3. Operation and maintenance activities are unlikely to have effects on sensitive vegetation communities because these activities would occur where the vegetation communities have already been removed or disturbed during construction activities.

Maintenance of rail infrastructure provides additional opportunities for establishment and/or spread of invasive species. Soil erosion, sedimentation, and oil and lubricant runoff from rail infrastructure and station facilities could result in these substances entering adjacent drainage channels and exposing vegetation communities to polluted runoff and chemicals. However, operational maintenance requires vegetation and pest control through a variety of methods, including the application of herbicides and pesticides. Pesticides and herbicides would be applied by certified pesticide applicators in accordance with all requirements of the California Department of Pesticide Regulation and County Agricultural Commissioners. Effects associated with the Eastern Section of Build Alternative Options 1, 2, and 3 on sensitive vegetation communities would be moderate when compared with the No Build Alternative.

Special-Status Plant Species Effects

CONSTRUCTION

The Western Section of the Program Corridor under Build Alternative Options 1, 2, and 3 has areas where special-status plant species have the potential to occur. However, the Western Section of the Program Corridor would utilize existing rail infrastructure, and no additional track improvements, station improvements or new stations would be required to accommodate the proposed service.

When compared with the No Build Alternative, short-term/temporary effects on special-status plant species would be considered negligible because no additional construction activities would occur within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. The potential for special-status plant species to occur in a habitat is linked to the physical characteristics of the landscape, including elevation, soils, and microhabitat. As summarized in Table 3.8-7, there are multiple special-status plant species with the potential to occur within the Eastern Section of the Build Alternative Options. These special-status plant species each have a specific set of habitat requirements. Depending on where the rail infrastructure improvements and station facilities are located, there is the potential for construction activities to affect these special-status wildlife species. Table 3.8-7 provides the number of special-status plant species with potential to occur within the Eastern Section.

Table 3.8-7. Number of Special-Status Plant Species with Potential to Occur within the Eastern Section

Non-Station Area	Loma Linda Station Area	Pass Area Station Area	Mid-Valley Station Area	Indio Station Area	Coachella Station Area
18	3	8	8	3	2

Effects on special-status plant species may result from the removal of vegetation for the placement of new permanent rail infrastructure or station facilities within the Eastern Section of the Program Corridor. Additional construction effects may result from construction vehicles and personnel disturbing vegetation (i.e., trampling, covering, and crushing individual plants, populations, or suitable potential habitat for special-status plant species). Other construction effects include clearing, grubbing, covering, undercutting and damaging roots, or unearthing of individual plants. Dust and airborne soil, which may settle on plants, particularly herbs, may inhibit their ability to photosynthesize or reproduce through pollination. Soil compaction and the placement of fill may directly affect special-status plant species by causing decreased fitness or death by root compaction, decreased germination from the seed bank, and/or the plants being covered with soil. Chemical spills have the potential to contaminate the soil and groundwater, resulting in mortality, habitat degradation, or reduced reproductive success of special-status plant species.

If a passenger rail system is constructed and operated within the existing rail ROW, no ROW acquisitions would be required. However, the Tier 1/Program EIS/EIR Study Area allows for infrastructure and station facilities to be located beyond the limits of the existing rail ROW, which would require acquisition of land that may contain suitable habitat that would support special-status plant species. The properties that would be affected by the future construction and operation of a passenger rail system, and to what extent, cannot be determined at this time. Therefore, this Tier

1/Program EIS/EIR evaluation does not identify the specific effects on special-status plant species at specific sites because the sites where infrastructure and station improvements would be constructed have not yet been selected.

The Tier 2/Project-level analysis would evaluate site-specific impacts associated with special-status plant species. When compared with the No Build Alternative, Build Alternative Option 1 could have a substantial effect on special-status plant species 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 substantial 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 would be considered substantial 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. During operation, existing maintenance activities that would occur within the ROW along the Western Section route would be in areas where the natural ecosystem has already been disturbed and the Program Corridor is heavily trafficked. Effects associated with the Western Section of Build Alternative Options 1, 2, and 3 on special-status plant species would be negligible when compared with the No Build Alternative.

Eastern Section. Operational effects are anticipated to be limited to maintenance of culverts, bridges, embankments, and station areas under Build Alternative Options 1, 2, and 3. Operation and maintenance activities are unlikely to have effects on special-status plant species because these activities would occur where the vegetation communities (i.e., areas with potential habitat for special-status plant species) has already been removed or disturbed during construction activities.

Maintenance of rail infrastructure provides additional opportunities for establishment and/or spread of invasive species. Soil erosion, sedimentation, oil and lubricant runoff from rail infrastructure and station facilities could result in these substances entering adjacent drainage channels and exposing special-status plant species to chemicals. However, operational maintenance requires vegetation and pest control through a variety of methods, including the application of herbicides and pesticides. Pesticides and herbicides would be applied by certified pesticide applicators in accordance with all requirements of the California Department of Pesticide Regulation and County Agricultural

Commissioners. Effects associated with the Eastern Section of Build Alternative Options 1, 2, and 3 on special-status plant species would be moderate when compared with the No Build Alternative.

Special-Status Wildlife Species Effects

CONSTRUCTION

Western Section. The Western Section of the Program Corridor under Build Alternative Options 1, 2, and 3 has areas where special-status wildlife species have the potential to occur. However, the Western Section of the Program Corridor would utilize existing rail infrastructure, and no additional track improvements, station improvements, or new stations would be required to accommodate the proposed service. When compared with the No Build Alternative, short-term/temporary effects on special-status wildlife species would be considered negligible because no additional construction activities would occur within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Construction activities associated with development of a passenger rail system, including vegetation removal; ground clearing; placement of fill material for track; new, replaced, or extended culverts and bridges; and station facility development in the Eastern Section could potentially result in disturbance to, and mortality of, special-status wildlife species. Staging areas, access roads, and development of other facilities needed to support construction activities could result in permanent loss of habitat or reduction of habitat values. Disturbance during construction, and later reclamation of such areas, would result in a temporary loss of habitat; although in desert systems, restoration of disturbed areas to previous conditions may take decades.

As summarized in Table 3.8-8, there are multiple special-status wildlife species with the potential to occur within the Eastern Section of the Build Alternative Options. These special-status wildlife species include invertebrates, fish, amphibians, reptiles, birds, and mammals, each with a specific set of habitat requirements. Depending on the location of the rail infrastructure improvements and station facilities, there is the potential for construction activities to affect these special-status wildlife species. Table 3.8-8 provides the number of special-status wildlife species for the Eastern Section.

Table 3.8-8. Number of Special-Status Wildlife Species with Potential to Occur within the Eastern Section

Special-Status Wildlife Species	Non-Station Area	Loma Linda Station Area	Pass Area Station Area	Mid-Valley Station Area	Indio Station Area	Coachella Station Area
Invertebrates	2	0	0	0	0	0

Special-Status Wildlife Species	Non-Station Area	Loma Linda Station Area	Pass Area Station Area	Mid-Valley Station Area	Indio Station Area	Coachella Station Area
Fish	4	0	2	0	0	0
Amphibians	2	2	0	0	0	0
Reptiles	11	6	6	4	3	1
Birds	18	9	5	5	5	5
Mammals	22	4	17	9	7	7
Total	59	21	30	18	15	13

For special-status aquatic species (invertebrates, fish, amphibians), construction activities may result in aquatic habitats being disturbed, penetrated, filled, polluted, or otherwise destroyed or degraded by construction equipment, siltation, and sedimentation. Construction equipment traveling off road in suitable aquatic habitats could cause erosion, soil compaction, increased siltation, destruction of native vegetation, and alteration of hydrology, which could negatively affect special-status aquatic species through loss of the acreage and quality of suitable habitat.

Construction effects on special-status aquatic species may also consist of physical disturbance, temporary interruptions to fish passage, sedimentation, turbidity, altered water temperatures, oxygen depletion, and contaminants.

Construction of bridges would likely require work below the ordinary high-water mark of water bodies that support, or have the potential to support, special-status aquatic species. Dewatering during construction, if needed, may result in the stranding and mortality of special-status aquatic species. Pile driving in areas when surface water is present could lead to behavioral changes, injury, and possible mortality as a result of vibrations. Changes in sedimentation and nutrient loading caused by soil eroding into occupied habitat related to construction disturbance of channel sediments and adjacent soils may result in habitat degradation or reduced reproductive success. Chemical spills from construction equipment (e.g., fuel, transmission fluid, lubricating oil, and motor oil) could contaminate the water column, resulting in habitat degradation or reduced reproductive success of special-status aquatic species in downstream habitats.

For special-status terrestrial species (invertebrates, reptiles, birds, mammals), construction activities may result in effects on suitable habitat that could cause mortality, injury, or harassment of adults or juveniles. Construction activities may also result in the temporary destruction, degradation, or pollution of habitat and the temporary loss of nesting areas, burrows, or other refugia. Construction

effects also include the permanent conversion of occupied habitat to rail infrastructure improvement or station facility use and fragmentation of habitats and landscapes resulting from construction of the Program. Mortality, injury, or harassment may also occur if these special-status terrestrial species become trapped in open, excavated areas or are stuck by construction vehicles driving on and off roads. Vibration from construction equipment could collapse inhabited burrows located within or in the vicinity of the construction site.

Construction activities requiring soil compaction and the placement of fill in suitable habitat may also affect special-status terrestrial species by prohibiting burrowing or changing the frequency of vegetative cover. Construction activities could result in temporary shifts in foraging patterns or territories and the use of daily or seasonal refugia.

Effects during the construction period may include the permanent or temporary displacement of special-status terrestrial species to avoid disturbance (e.g., noise, vibration, visual stimuli); such displacement could also result from fragmentation of the landscape caused by the construction of Program features (e.g., security fences, elevated structures, railbeds, and associated facilities).

Construction effects on special-status terrestrial species may occur either through direct mortality or habitat modifications if there would be a permanent reduction in the acreage and quality of suitable habitat for these species.

For special-status avian and bat species, construction activities could result in the removal or disturbance of potential nesting habitat, mortality or injury; the permanent conversion of occupied nesting and foraging habitat to rail or station infrastructure; and fragmentation of habitats and landscapes resulting from construction of the Program. If construction occurs during the breeding season for birds (generally February 1 to September 1), active nests could also be disturbed, potentially causing the loss of eggs or developing young (i.e., nest abandonment during the incubation, nestling, or fledgling stages), and noise could cause birds to avoid adjacent suitable nesting habitat.

If construction occurs during the bat maternity season (generally April 15 to August 31), bat roosts could also be disturbed, which could disrupt bat breeding or roosting activity. In addition, increased lighting after sunset could disrupt foraging activities by special-status bat species, causing them to leave an area that has prolonged disturbance. Nocturnal insects are drawn by lighting, which in turn attracts foraging bats. Special-status bats that are attracted to lighted construction areas could have higher potential mortality through disorientation and effects with construction equipment.

If a passenger rail system is constructed and operated within the existing rail ROW, no ROW acquisitions would be required. However, the Tier 1/Program EIS/EIR Study Area allows for infrastructure and station facilities to be located beyond the limits of the existing rail ROW, which would require acquisition of land that may contain suitable habitat that would support special-status

wildlife species. The properties that would be affected by the future construction and operation of a passenger rail system, and to what extent, cannot be determined at this time. Therefore, this Tier 1/Program EIS/EIR evaluation does not identify the specific effects on special-status wildlife species at specific sites because the sites where infrastructure and station improvements would be constructed have not yet been selected.

The Tier 2/Project-level analysis would evaluate site-specific impacts associated with special-status wildlife species. When compared with the No Build Alternative, Build Alternative Option 1 could have a substantial effect on special-status wildlife species 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 substantial when compared with the No Build Alternative. When compared with Build Alternative Option 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 would be considered substantial 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. During operation, existing maintenance activities that would occur within the ROW along the Western Section route would be in areas where the natural ecosystem has already been disturbed and the Program Corridor is heavily trafficked. Effects associated with the Western Section of Build Alternative Options 1, 2, and 3 on special-status wildlife species would be negligible when compared with the No Build Alternative.

Eastern Section. Operational effects are anticipated to be limited to maintenance of culverts, bridges, embankments, and station areas under Build Alternative Options 1, 2, and 3. The number of structural features, such as culverts, bridges, and switchyards, may influence the frequency and nature of maintenance activities, the removal of vegetation from the ROW, and disturbances due to the presence of maintenance crews and equipment. Soil erosion, sedimentation, oil and lubricant runoff from rail infrastructure and station facilities, and the potential for spills during maintenance activities, could result in these substances entering adjacent drainage channels and exposing wildlife to toxic chemicals.

Efforts during the design phase to avoid sensitive vegetation communities or critical habitat would help to minimize potential operational effects on special-status wildlife species. In addition,

maintenance BMPs would be developed and implemented for future station areas to ensure that maintenance materials such as oils, lubricants, and fuels are handled in an appropriate regulatory manner and kept away from sensitive areas to minimize effects on special-status wildlife species.

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 (Build Alternative Option 1), and Los Angeles to Indio (Build Alternative Options 2 and 3), respectively. The Program Corridor within the Eastern Section generally parallels existing transportation infrastructure, including I-10 and the UP railroad. Freight and passenger trains currently travelling on the existing rail line make approximately 43 trips per day through the Eastern Section between Coachella and Colton with existing train traffic ranging between 30 and 70 miles per hour. Wildlife that may be present in the vicinity of the existing highway and rail lines have been exposed, to some extent, to disturbances associated with railroad operations and highway traffic.

While habituation to transportation noise, such as at airports, highways, and urban centers, is commonly seen in some species and individuals of wildlife, the effect of train noise and associated vibration on wildlife is unclear. The passage of a train may not cause habitat degradation; however, wildlife, especially larger mammals such as bighorn sheep, may have behavioral and physiological responses to this type of disturbance. The magnitude of these effects on wildlife is not always clear and reflects individual animals' experiences and habituation to similar events. Therefore, the diversity of effects that noise may have among and between wildlife species complicates the interpretation of the effect of noise on wildlife as a whole. Some wildlife species that live near active railroad tracks may become accustomed to noise and vibration from trains. Migratory species and species that do not consistently inhabit the rail corridor may be more affected by trains.

Operational/long-term effects associated with the Eastern Section of Build Alternative Options 1, 2, and 3 would have a noticeable and inevitable effect on wildlife; however, the effects could be mitigated by the use of mitigation strategies as described in Section 3.8.8. In addition, regulatory agencies like USFWS and CDFW have rules and guidance that are applied when such resources may be impacted during operation. It is anticipated that regulatory compliance would require avoidance, minimization, or compensatory mitigation that reduce effects on special-status wildlife species. Therefore, operational effects associated with the Eastern Section of Build Alternative Option 1 on special-status wildlife species would be moderate when compared with the No Build Alternative.

When compared with Build Alternative Option 1, implementation of Build Alternative Option 2 could result in fewer effects on special-status wildlife species during operation. This would be attributed to a smaller study area for Build Alternative Option 2. When compared with Build Alternative Option 2, implementation of Build Alternative Option 3 could result in a similar effect on special-status wildlife species during operation.

Overall, as compared with Build Alternative Option 1, implementation of Build Alternative Option 2 could potentially have a lesser effect on special-status wildlife species because Build Alternative Option 2 contains fewer locations of sensitive vegetation communities that could be impacted. However, while the number of special-status wildlife species that could be impacted differs between Build Alternative Option 2 and Build Alternative Option 1, the magnitude of effects would be similar and would 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 would be considered moderate when compared with the No Build Alternative.

Wildlife Movement Corridors Effects

CONSTRUCTION

Western Section. The Western Section of the Program Corridor under Build Alternative Options 1, 2, and 3 would utilize existing rail infrastructure, and no additional track improvements, station improvements or new stations would be required to accommodate the proposed service. When compared with the No Build Alternative, short-term/temporary effects on wildlife movement corridors would be considered negligible because no additional construction activities would occur within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Construction of rail infrastructure improvements and station facilities within the Eastern Section under Build Alternative Options 1, 2, and 3 has the potential to result in impediments to the movement of wildlife across the landscape. The existing rail alignment crosses drainages, roadways, and culverts that serve as crossing structures for wildlife movement corridors. Construction activities often deter wildlife from entering construction work areas, and work occurring near existing crossing structures—such as underpasses, overpasses, or culverts—could deter use of those structures by wildlife.

The presence of construction personnel and the operation of construction equipment would result in increased noise, dust, vehicle traffic, and human activity, which could temporarily deter wildlife from using movement corridors that may be located within a specific site. Additionally, the removal of

vegetation in temporary work areas near existing and proposed undercrossings would have temporary effects on wildlife movement for some species by leaving them exposed as they approach the underpasses and potentially deterring them from using the crossings until the vegetation has regenerated. However, effects on wildlife movement corridors would be dependent on the placement of new rail infrastructure (tracks, ballast, embankments, stations, etc.) in relation to existing wildlife movement corridors.

Effects associated with the Eastern Section portion of Build Alternative Option 1 on wildlife movement corridors would be substantial when compared with the No Build Alternative. When compared with Build Alternative Option 1, implementation of Build Alternative Option 2 could result in fewer wildlife movement corridors that could be affected during construction. This would be attributed to a smaller study area for Build Alternative Option 2. When compared with Build Alternative Option 2, implementation of Build Alternative Option 3 could result in a similar effect on wildlife movement corridors during construction.

Overall, as compared with Build Alternative Option 1, implementation of Build Alternative Options 2 and 3 could potentially have a lesser effect on wildlife movement corridors because the study area for Build Alternative Options 2 and 3 contains fewer locations where wildlife movement corridors may be present. However, while the number of wildlife movement corridors may differ between Build Alternative Options 1, 2, and 3, the magnitude of effects would be similar and considered substantial when compared with the No Build Alternative. Site-specific effects would be identified and evaluated during the Tier 2/Project-level analysis once details for the needed rail infrastructure improvements and station facilities are known.

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. During operation, existing maintenance activities that would occur within the ROW along the Western Section would be in areas where the natural ecosystem has already been disturbed and the Program Corridor is heavily trafficked. Effects associated with the Western Section of Build Alternative Options 1, 2, and 3 on wildlife movement corridors would be negligible when compared with the No Build Alternative.

Eastern Section. Operation of any of the Build Alternative Options would include the addition of two daily round-trip intercity passenger trains and operation of various station facilities within the Eastern Section of the Program Corridor. During operation, existing maintenance activities that would occur within the ROW along the Eastern Section would be in areas where the natural ecosystem has already been disturbed. Wildlife present in the vicinity of these existing railroad lines within the

Eastern Section of the Program Corridor have been exposed, to some degree, to disturbances associated with railroad operations and vehicular traffic on the interstates and highways.

Operation of the new stations in the Eastern Section of the Program Corridor would result in increased human activity, including new lighting and noise sources, which may impact the use of adjacent wildlife movement corridors. Though wildlife in the Program Corridor have been habituated to existing noise and vibrations from existing rail and roadway traffic in the Program Corridor, the operation of permanent and stationary noise and lighting sources from stations may interfere with wildlife movement between habitats and result in changes in wildlife behavioral and physiological responses. However, effects on wildlife movement corridors would be dependent on the placement of new rail infrastructure (tracks, ballast, embankments, stations, etc.) in relation to existing wildlife movement corridors.

Effects associated with the Eastern Section portion of Build Alternative Option 1 on wildlife movement corridors would be moderate when compared with the No Build Alternative. When compared with Build Alternative Option 1, implementation of Build Alternative Option 2 could result in fewer wildlife movement corridors that could be affected during operation. This would be attributed to a smaller study area for Build Alternative Option 2. When compared with Build Alternative Option 2, implementation of Build Alternative Option 3 could result in a similar effect on wildlife movement corridors during operation.

Overall, as compared with Build Alternative Option 1, implementation of Build Alternative Options 2 and 3 could potentially have a lesser effect on wildlife movement corridors because the study area for Build Alternative Options 2 and 3 contains fewer locations where wildlife movement corridors may be present. However, while the number of wildlife movement corridors may differ between Build Alternative Options 1, 2, and 3, the magnitude of effects would be similar and considered moderate when compared with the No Build Alternative. Site-specific effects would be identified and evaluated during the Tier 2/Project-level analysis once details for the needed rail infrastructure improvements and station facilities are known.

3.8.6 NEPA Summary of Potential Effects

Table 3.8-9 summarizes 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 types of resources that may be affected and, more importantly, the relative magnitude of resources that may be affected. For habitat resources, the level of intensity is based on volume of habitat potentially affected, and most habitat effects can be mitigated through habitat replacement or habitat mitigation banks. Specific mitigation measures to avoid and minimize effects would be analyzed at the Tier 2/Project-level analysis.

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Table 3.8-9. NEPA Summary of Effects on Biological Resources

Alternative Options	Sensitive Vegetation Communities (number of communities)	Critical Habitat (number of species)	Special-Status Plants (number of species)	Special-Status Wildlife (number of species)	Potential Intensity of Effect: Western Section	Potential Intensity of Effect: Eastern Section
No Build Alternative ^a	0	0	0	0	Construction: None Operation: None	Construction: None Operation: None
Build Alternative Option 1 (Coachella Terminus)	5	6	22	66	Construction: Negligible Operation: Negligible	Construction: Substantial Operation: Moderate
Build Alternative Option 2 (Indio Terminus)	5	6	22	66	Construction: Negligible Operation: Negligible	Construction: Substantial Operation: Moderate
Build Alternative Option 3 (Indio Terminus with Limited Third Track)	5	6	22	66	Construction: Negligible Operation: Negligible	Construction: Substantial Operation: Moderate

Notes:

- ^a The No Build Alternative includes existing and potential expansion of roadway, passenger rail, and air travel facilities within the Tier 1/Program EIS/EIR Study Area; however, for the service-level evaluation, identifying levels of effect from potential expansion of those facilities is speculative and would be dependent on the Tier 2/Project-level analysis.

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3.8.7 CEQA Summary of Potential Impacts

Based on the information provided in Sections 3.8.4 and 3.8.5, and considering the CEQA Guidelines Appendix G Checklist questions for biological resources, the Build Alternative Options are considered to have a potentially significant impact on biological resources when reviewed on a Program-wide basis.

Placing the infrastructure improvements and new stations largely within or along the existing ROW reduces the potential for significant impacts to these resources. However, because the precise sites for rail infrastructure and station facilities have not been selected, some biological resources may be significantly impacted. At the programmatic analysis level, it is not possible to precisely know the location, extent, and characteristics of impacts on these resources. Proposed programmatic mitigation strategies discussed in Section 3.8.8 will be applied to reduce these impacts on biological resources.

Table 3.8-10 summarizes CEQA significance conclusions for the Build Alternative Options; the proposed programmatic mitigation strategies that could be applied to minimize, reduce, or avoid the potential impacts; and the significance determination after mitigation strategies are applied. The identification and implementation of additional site-specific mitigation measures necessary for Project implementation would occur as part of the Tier 2/Project-level analysis.

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Table 3.8-10. CEQA Summary of Impacts for Biological Resources

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Would the Program have a substantial adverse effect, either directly or through habitat modifications, including designated critical habitat, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by USFWS or CDFW?</p>		
<p>Construction</p>		
<p>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.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – Potentially Significant. Potential impacts on special-status plant and wildlife species depend on the location of infrastructure improvements and station locations, which are currently unknown. Special-status plants and wildlife species and habitat that supports these species, including critical habitat, occur in within Build Alternative Option 1, 2, or 3. Impacts on special-status plant and wildlife species may result from the removal of vegetation or the placement of new permanent infrastructure improvements during construction activities and could result in a potentially significant impact. The Tier 2/Project-level analysis would identify and evaluate construction impacts on special-status plant and wildlife species.</p>	<p>BIO-1 BIO-2 BIO-3 BIO-4 BIO-5 LU-3</p>	<p>Potentially Significant. BIO-1 through BIO-5 and LU-3 would minimize, reduce, or avoid potential impacts on special-status plant and wildlife species by identifying resources in the Tier 2/Project-level Study Area and measures to minimize impacts on habitat through worker environmental awareness program training, limiting disturbance areas, controlling non-native and invasive species, and replacing or compensating for habitat loss. However, impacts may remain significant and unavoidable as further analysis may determine that there is a conflict that cannot be mitigated.</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Operation		
<p>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 that would result in habitat modifications. No operational impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	Not applicable	Not applicable
<p>Eastern Section – Potentially Significant. Potential impacts on special-status plant and wildlife species depend on the location of infrastructure improvements and station locations, which are currently unknown. Special-status plants and wildlife species and habitat that supports these species, including critical habitat, occur within Build Alternative Options 1, 2, and 3. Impacts on special-status plant and wildlife species may result from operation of new stations and could result in a potentially significant impact. The Tier 2/Project-level analysis would identify and evaluate operational impacts on special-status plant and wildlife species.</p>	<p>BIO-1 BIO-2 BIO-3 BIO-4 LU-3</p>	<p>Potentially Significant. BIO-1 through BIO-4 and LU-3 would minimize, reduce, or avoid potential impacts on special-status plant and wildlife species by identifying resources in the Tier 2/Project-level Study Area and measures to minimize impacts on habitat through limiting disturbance areas, controlling non-native and invasive species, and replacing or compensating for habitat loss. However, impacts may remain significant and unavoidable as further analysis may determine that there is a conflict that cannot be mitigated.</p>
<p><i>Would the Program have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations by USFWS or CDFW?</i></p>		
Construction		
<p>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.</p>	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Potentially Significant. Potential impacts on riparian habitats under Build Alternative Option 1, 2, or 3 depend on the location of infrastructure improvements and station locations, which are currently unknown. Impacts on riparian habitats or sensitive natural communities may result from the removal of vegetation or the placement of new permanent infrastructure improvements during construction and could result in a potentially significant impact. The Tier 2/Project-level analysis would identify and evaluate any impacts on sensitive natural communities during construction.</p>	<p>BIO-1 BIO-2 BIO-3 BIO-4 BIO-5 LU-3</p>	<p>Potentially Significant. BIO-1 through BIO-5 and LU-3 would minimize, reduce, or avoid potential impacts on special-status plant and wildlife species by identifying resources in the Tier 2/Project-level Study Area and measures to minimize impacts on habitat through worker environmental awareness program training, limiting disturbance areas, controlling non-native and invasive species, and replacing or compensating for habitat loss. However, impacts may remain significant and unavoidable as further analysis may determine that there is a conflict that cannot be mitigated.</p>
<p>Operation</p>		
<p>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 that would result in habitat modifications. No operational impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Potentially Significant. Potential impacts on riparian habitat or sensitive natural communities depend on the location of infrastructure improvements and station locations, which are currently unknown. Riparian habitat or sensitive natural communities occur within Build Alternative Option 1, 2, or 3. Impacts on riparian habitat or sensitive natural communities may result from operation of new stations and could result in a potentially significant impact. The Tier 2/Project-level analysis would identify and evaluate operational impacts on riparian habitat or sensitive natural communities.</p>	<p>BIO-1 BIO-2 BIO-3 BIO-4 LU-3</p>	<p>Potentially Significant. BIO-1 through BIO-4 and LU-3 would minimize, reduce, or avoid potential impacts on riparian habitat or sensitive natural communities by identifying resources in the Tier 2/Project-level Study Area and measures to minimize impacts on habitat through limiting disturbance areas, controlling non-native and invasive species, and replacing or compensating for habitat loss. However, impacts may remain significant and unavoidable as further analysis may determine that there is a conflict that cannot be mitigated.</p>
<p><i>Would the Program interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?</i></p>		
<p>Construction</p>		
<p>Western Section – No Impact. No construction impacts under 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.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – Potentially Significant. Potential impacts on wildlife movement corridors depend on the location of infrastructure improvements and station locations, which are currently unknown. Construction activities that may occur in the Eastern Section under Build Alternative Option 1, 2, or 3 may deter wildlife from entering construction work areas and work occurring near existing crossing structures, which would deter use of these structures. The Tier 2/Project-level analysis would identify and evaluate impacts on wildlife movement corridors.</p>	<p>BIO-1</p>	<p>Less Than Significant. BIO-1 would minimize, reduce, or avoid potential impacts on wildlife corridors through design and further analysis.</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
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 that would result in changes to established wildlife corridor or impede the use of wildlife nursery sites. Therefore, no operational impacts under Build Alternative Option 1, 2, or 3 are anticipated at the Tier 1/Program EIS/EIR evaluation level.	Not applicable	Not applicable
Eastern Section – Potentially Significant. Potential impacts on wildlife movement corridors depend on the location of infrastructure improvements and station locations, which are currently unknown. Operational activities in the Eastern Section under Build Alternative Option 1, 2, or 3 may deter wildlife from using existing wildlife movement corridor structures or impeding wildlife movement through an increase in human activity within the area. The Tier 2/Project-level analysis would identify and evaluate impacts on wildlife movement corridors.	BIO-1	Potentially Significant. BIO-1 would identify and minimize, reduce, or avoid potential impacts from conflicts with wildlife movement corridors through design and further analysis. However, impacts may remain significant and unavoidable as further analysis may determine that there is a conflict that cannot be mitigated between land uses.
Would the Program conflict with any local policies or ordinances protecting biological resources, such as a tree-preservation policy or ordinance?		
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

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Potentially Significant. Potential impacts associated with conflict with local policies protecting biological resources depend on the location of infrastructure improvements, which is currently unknown. The Eastern Section under Build Alternative Options 1, 2, and 3 crosses multiple local jurisdictions that may have biological resources policies that may conflict with construction activities. The Tier 2/Project-level analysis would identify and evaluate impacts related to conflicts with local policies or ordinances protecting biological resources.</p>	<p>BIO-1 LU-3</p>	<p>Potentially Significant. BIO-1 and LU-3 would identify would minimize, reduce, or avoid potential impacts from conflicts with plans and policies through design and further analysis. However, impacts may remain significant and unavoidable as further analysis may determine that there is a conflict that cannot be mitigated between land uses.</p>
<p>Operation</p>		
<p>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 that would result in conflicts with local policies or ordinances protecting biological resources. Therefore, no operational impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – Potentially Significant. Potential impacts associated with conflicts associated with local biological resource policies depend on the location of infrastructure improvements, which are currently unknown. The Eastern Section under Build Alternative Options 1, 2, and 3 crosses multiple local jurisdictions that may have biological resources policies that may conflict with operational activities. The Tier 2/Project-level analysis would identify and evaluate impacts related to conflict with the provisions of locally adopted biological resource policies.</p>	<p>BIO-1 LU-3</p>	<p>Potentially Significant. BIO-1 and LU-3 would identify would minimize, reduce, or avoid potential impacts from conflicts with plans and policies through design and further analysis. However, impacts may remain significant and unavoidable as further analysis may determine that there is a conflict that cannot be mitigated between land uses.</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Would the Program conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan?		
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 impacts associated with conflict with an HCP or NCCP depend on the location of infrastructure improvements, which are currently unknown. The Eastern Section under Build Alternative Options 1, 2, and 3 is located within the Coachella Valley MSHCP and Western Riverside County MSHCP. Construction activities may conflict with the provisions of a habitat conservation plan. The Tier 2/Project-level analysis would identify and evaluate impacts related to conflict with the provisions of an adopted HCP or NCCP.	BIO-1 LU-3	Potentially Significant. BIO-1 and LU-3 would identify would minimize, reduce, or avoid potential impacts from conflicts with plans and policies through design and further analysis. However, impacts may remain significant and unavoidable as further analysis may determine that there is a conflict that cannot be mitigated between land uses.
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 that would result in conflicts with adopted habitat conservation plans. Therefore, no operational impacts are 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
<p>Eastern Section – Potentially Significant. The Eastern Section under Build Alternative Options 1, 2, and 3 is located within the Coachella Valley MSHCP and Western Riverside County MSHCP. Operational activities may conflict with the provisions of a habitat conservation plan; therefore, there is potential for operational impacts. The Tier 2/Project-level analysis would identify and evaluate impacts related to conflict with the provisions of an adopted HCP or NCCP.</p>	<p>BIO-1 LU-3</p>	<p>Potentially Significant. BIO-1 and LU-3 would identify would minimize, reduce, or avoid potential impacts from conflicts with plans and policies through design and further analysis. However, impacts may remain significant and unavoidable as further analysis may determine that there is a conflict that cannot be mitigated between land uses.</p>

Notes:

CDFW=California Department of Fish and Wildlife; EIR=environmental impact report; EIS=environmental impact statement; HCP=Housing and Urban Development Consolidated Plan; MSHCP=Multiple Species Habitat Conservation Plan; NCCP=Natural Communities Conservation Planning; USFWS=United States Fish and Wildlife Service

3.8.8 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. Examples of programmatic mitigation strategies for biological resources include avoiding effects and impacts, when possible, and minimizing effects and impacts where complete avoidance is not feasible, particularly on protected and sensitive species and their associated habitats, and wildlife movement corridors and linkages. Additionally, mitigation strategies for unavoidable effects and impacts on biological resources could include in-lieu fees and on- or off-site mitigation, such as habitat or vegetation restoration or payment into a conservation bank. Coordination with USFWS and CDFW would occur to develop Tier 2/Project-level mitigation measures during the Tier 2/Project-level analysis after design details are known. Proposed programmatic mitigation strategies, include, but are not limited to, the following:

Mitigation Strategy BIO-1: During the Tier 2/Project-level analysis, a preliminary biological resource screening shall be performed as part of the environmental review process to determine whether the specific rail infrastructure or station facility proposed has any potential to impact biological resources. If the specific rail infrastructure or station facility proposed has no potential to impact biological resources, no further action will be required. If the specific rail infrastructure or station facility proposed has the potential to impact biological resources, a qualified biologist shall conduct a biological resources assessment report to document the existing biological resources within the Tier 2/Project-level Study Area. The report shall include, but not be limited to, analysis and recommendations on the following topics:

- Special-status species
- Nesting birds
- Wildlife movement
- Sensitive plant communities and critical habitat
- Jurisdictional waters
- Applicable habitat conservation plans
- Other biological resources identified as sensitive by local, state and/or federal agencies

Pending the results of the biological resources assessment, design alterations; further technical studies (e.g., protocol surveys); and/or consultations with the United States Fish and Wildlife Service, California Department of Fish and Wildlife, and other local, state, and federal agencies may

be required. If the specific rail infrastructure or station facility proposed cannot be designed without complete avoidance, the lead agency shall coordinate with the appropriate resource agency to obtain regulatory permits and implement Project-specific mitigation prior to any construction activities.

Mitigation Strategy BIO-2: If completion of the Project-specific biological resources assessment determines that special-status plant species have potential to occur on site, surveys for special-status plants shall be completed prior to any vegetation removal, grubbing, or other construction activity of each project (including staging and mobilization). The surveys shall be floristic in nature and shall be seasonally timed to coincide with the target species identified in the Project-specific biological resources assessment. All plant surveys shall be conducted by a qualified biologist approved by the implementing agency no more than 2 years prior to Project implementation. All special-status plant species identified on site shall be mapped onto a site-specific aerial photograph or topographic map. Surveys shall be conducted in accordance with the most current protocols established by the California Department of Fish and Wildlife and/or the United States Fish and Wildlife Service. A report of the survey results shall be submitted to the implementing agency for review. If special-status plant species are identified, Mitigation Strategy BIO-3 shall apply.

Mitigation Strategy BIO-3: If federally or state-listed and/or California Rare Plant Rank 1 and 2 species are found during special-status plant surveys (pursuant to Mitigation Strategy BIO-1), the specific rail infrastructure or station facility proposed shall be redesigned to avoid impacting these plant species where feasible based on coordination with the local jurisdiction and applicable resource agencies. If California Rare Plant Rank 3 and 4 species are found, the biologist shall evaluate to determine if they meet criteria to be considered special status. If so, the same process as identified for California Rare Plant Rank 1 and 2 species shall apply. If special-status plants species cannot be avoided and would be impacted by the specific rail infrastructure or station facility proposed, all impacts shall be mitigated for each species as a component of habitat restoration. A restoration plan shall be prepared and submitted to the lead agency and/or the local jurisdiction overseeing the Project for approval. The restoration plan shall include, at a minimum, the following components:

- Description of the Project/impact site (i.e., location, responsible parties, areas to be impacted by habitat type)
- Goal(s) of the compensatory mitigation project (type(s) and area(s) of habitat to be established, restored, enhanced, and/or preserved; specific functions and values of habitat type(s) to be established, restored, enhanced, and/or preserved)

- Description of the proposed compensatory mitigation site (location and size, ownership status, existing functions and values)
- Implementation plan for the compensatory mitigation site (rationale for expecting implementation success, responsible parties, schedule, site preparation, planting plan)
- Maintenance activities during the monitoring period, including weed removal as appropriate (activities, responsible parties, schedule)
- Monitoring plan for the compensatory mitigation site, including performance standards, target functions and values, target acreages to be established, restored, enhanced, and/or preserved, annual monitoring reports
- Success criteria based on the goals and measurable objectives (said criteria to include numeric criteria to be selected based on the scale of the restoration effort and the restoration technique used)
- An adaptive management program and remedial measures to address any shortcomings in meeting success criteria
- Notification of completion of compensatory mitigation and agency confirmation
- Contingency measures (initiating procedures, alternative locations for contingency compensatory mitigation, funding mechanism)

Mitigation Strategy BIO-4: Specific habitat assessment and survey protocol surveys are established for several federally and/or state endangered or threatened species. If the results of the biological resources assessment determine that suitable habitat may be present for any such species, protocol habitat assessments/surveys shall be completed in accordance with the California Department of Fish and Wildlife and/or United States Fish and Wildlife Service protocols prior to issuance of any construction permits/Project approvals. Alternatively, in lieu of conducting protocol surveys, the implementing agency may choose to assume presence within the Project footprint and proceed with development of appropriate avoidance measures, consultation, and permitting, as applicable. If the target species is detected during protocol surveys, or protocol surveys are not conducted and presence assumed based on suitable habitat, additional coordination shall apply.

Mitigation Strategy BIO-5: Prior to initiation of construction activities (including staging and mobilization), all personnel associated with Project construction shall attend worker environmental awareness program training, conducted by a qualified biologist, to aid workers in recognizing special-status resources that may occur in the Tier 2/Project-level Study Area. The specifics of this program shall include, but not be limited to, the following:

- Identification of the sensitive species and habitats
- Description of the regulatory status and general ecological characteristics of sensitive resources
- Review of the limits of construction and mitigation measures required to reduce impacts on biological resources within the work area
- Preparation of a fact sheet conveying this information shall for distribution to all contractors, their employers, and other personnel involved with construction of the Project
- Employee documentation associated with worker environmental awareness program attendance and acknowledgment

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 resources 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.

3.9 Floodplains, Hydrology, and Water Quality

3.9.1 Introduction

This section identifies potential floodplains, hydrologic, and water quality resources within the Tier 1/Program EIS/EIR Study Area and evaluates the effects associated with implementing the No Build Alternative and Build Alternative Options.

3.9.2 Regulatory Framework

In accordance with NEPA (42 USC Section 4321 et seq.), CEQ regulations implementing NEPA (40 CFR Parts 1501 through 1508), FRA's Procedures for Considering Environmental Impacts (64 FR 28545, May 26, 1999) and CEQA, FRA identified potential floodplains, water quality, and hydrologic resources within the Tier 1/Program EIS/EIR Study Area and evaluated the potential impacts that could occur from implementation of the Build Alternative Options.

Federal

Clean Water Act

The CWA, as amended, serves as the primary federal law protecting the quality of the nation's surface waters, including wetlands. The CWA prohibits any discharge of pollutants into the nation's waters unless specifically authorized by a permit. The CWA (33 USC Section 1251 et seq.) defines waters of the U.S., as follows:

- All waters that are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide
- All interstate waters, including interstate wetlands
- All other waters, such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce
- All impoundments of waters otherwise defined as waters of the U.S.
- Tributaries to the foregoing types of waters

- Wetlands adjacent to the foregoing waters (33 CFR Part 328.3 – the term adjacent means bordering, contiguous, or neighboring)

The applicable sections of the CWA are further discussed below:

- Section 303 identifies and sets pollutant standards (TMDL) for impaired waterbodies. TMDLs are the maximum amount of a pollutant that can be present in the waterbody and establishes restrictions for discharges to the waterbody.
- Under Section 401, activities that may result in a discharge into waters of the U.S. must obtain certification from the state in which the discharge would originate or from the interstate water pollution control agency with jurisdiction over affected waters. Project sponsors must obtain a 401 Water Quality Certification from the SWRCB.
- Under Section 402, discharges, including, but not limited to, construction-related stormwater discharges to surface waters, are regulated through the NPDES program. Project sponsors must obtain an NPDES Permit from the SWRCB.
- Under Section 404, USACE and the U.S. EPA regulate the discharge of dredged and fill materials into the waters of the U.S., including wetlands. Project sponsors must obtain a permit from USACE for discharges of dredged or fill materials into jurisdictional aquatic resources.

Executive Order 11988, Floodplain Management

EO 11988 requires federal agencies to avoid, to the extent possible, the short- and long-term adverse effects associated with the occupancy and modification of floodplains. Federal agencies are to avoid direct and indirect support of floodplain development wherever there is a practicable alternative.

Federal Emergency Management Agency

The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program. FEMA identifies flood hazard areas throughout the U.S. and its territories and produces Flood Hazard Boundary Maps and Flood Insurance Rate Maps. These maps are used for floodplain management and to determine risk-based flood insurance premiums for the National Flood Insurance Program.

Floodplain Management Department of Transportation Order 5650.2, Floodplain Management and Protection

The purpose of USDOT Order 5650.2 is to ensure that proper consideration is given to the avoidance and mitigation of adverse floodplain effects by USDOT actions, planning programs, and budget requests.

State

California Department of Transportation National Pollutant Discharge Elimination System Statewide Stormwater Permit

Caltrans operates under a permit (Order Number 2012-0011-DWQ, NPDES Number CAS000003, as amended by 2014-0006-EXEC, 2014-0077-DWQ, 2015-0036-EXEC, and Order WQ 2017-0026-EXEC) that regulates stormwater discharge from Caltrans properties, facilities, and activities and requires the Caltrans construction program to comply with the adopted statewide General Construction Permit. The permit requires Caltrans to implement a year-round program in all parts of the state to control stormwater and non-stormwater discharges from Caltrans' properties and facilities, and discharges associated with operation and maintenance of the state highway system.

National Pollutant Discharge Elimination System General Construction Permit

Under the CWA, discharges of stormwater from construction sites must comply with the conditions of an NPDES permit. The SWRCB is the permitting authority in California and has adopted the General Construction Permit that applies to projects resulting in 1 or more acres of soil disturbance. For projects disturbing more than 1 acre of soil, the SWRCB requires permittees to prepare a stormwater pollution prevention plan. The stormwater pollution prevention plan specifies site management activities that permittees or their construction contractors must implement during site development. These management activities include construction stormwater BMPs, erosion and sedimentation controls, dewatering (nuisance-water removal), runoff controls, and construction equipment maintenance.

Porter-Cologne Water Quality Control Act (California Water Code, Section 13000 et seq.)

The Porter-Cologne Water Quality Control Act requires the regulation of all pollutant discharges, including wastes in project runoff that could affect the quality of the state's water. Any entity proposing to discharge a waste must file a Report of Waste Discharge with the appropriate RWQCB or SWRCB. The RWQCBs are responsible for implementing CWA Sections 401, 402, and 303(d). Because the Program is of statewide importance, any Report of Waste Discharge will be filed with the SWRCB. The act also provides for the development and periodic review of basin plans that

designate beneficial uses for California’s major rivers and groundwater basins and establish water quality objectives for those waters.

Regional

Regional Water Quality Control Board Water Quality Control Plans (Basin Plans)

The Porter-Cologne Water Quality Control Act combined the State Water Rights Board and the SWRCB and created the nine RWQCBs. CWA Section 102 requires the planning agency of each state (in California, the SWRCB and, by extension, the RWQCBs) to prepare a water quality control plan known as a basin plan. The basin plan establishes the beneficial uses of water within the region; the water quality objectives necessary to protect those uses, including an antidegradation policy; the prohibitions, policies, and action plans, by which protections are implemented; and the monitoring, which is conducted to ensure attainment of water quality standards. The Program Corridor crosses three RWQCBs: Region 4 (Los Angeles), Region 7 (Colorado River), and Region 8 (Santa Ana) and would be subject to these RWQCBs basin plans.

Stormwater Management Programs

Stormwater discharges are permitted under the NPDES program. Section 402(p) of the CWA requires that Stormwater Management Programs be developed and implemented for municipalities to meet the requirements for stormwater discharges from Municipal Separate Storm Sewer System (MS4) Permits. Stormwater Management Programs limit, to the maximum extent practicable, the discharge of pollutants from storm sewer systems. A single state agency or a coalition, often consisting of more than one municipality (such as cities and counties), may implement these programs. Each program includes BMPs intended to reduce the quantity and improve the quality of stormwater discharged to the stormwater system. Discharges to storm sewer systems must comply with the Stormwater Management Program’s requirements.

In compliance with this requirement to develop a Stormwater Management Program, the county and Cities in Los Angeles, Orange, San Bernardino, and Riverside Counties developed Stormwater Management Programs.

LOS ANGELES COUNTY MUNICIPAL SEPARATE STORM SEWER SYSTEM PERMIT

The Los Angeles County MS4 Permit identifies programs and objectives associated with municipal discharges of stormwater and non-stormwater by the Los Angeles County Flood Control District, the County of Los Angeles, and 84 incorporated cities within Los Angeles County. For construction activities and new development/redevelopment, the Los Angeles County MS4 Permit requires the co-permittees to prepare a Stormwater Quality Management Plan, which includes identification and

implementation of BMPs that would be used to reduce the discharge of pollutants in stormwater to the maximum extent practicable.

ORANGE COUNTY MUNICIPAL SEPARATE STORM SEWER SYSTEM PERMIT

The Orange County MS4 Permit identifies programs and objectives associated with municipal discharges of stormwater and non-stormwater by the Orange County Flood Control District, the County of Orange, and 25 incorporated cities within Orange County. For construction activities and new development/significant redevelopment, the Orange County MS4 Permit requires the co-permittees to prepare a Local Implementation Plan, which includes identification and implementation of the BMPs that would be used to reduce the discharge of pollutants in stormwater to the maximum extent practicable.

RIVERSIDE COUNTY (SANTA ANA REGION) MUNICIPAL SEPARATE STORM SEWER SYSTEM PERMIT

The Riverside County (Santa Ana Region) MS4 Permit identifies programs and objectives associated with municipal discharges of stormwater and non-stormwater by the Riverside County Flood Control and Water Conservation District, the County of Riverside, and 14 incorporated cities within Western Riverside County. For construction activities and new development/significant redevelopment, the Riverside County (Santa Ana Region) MS4 Permit requires development of a standard design and post-development BMP guidance to guide application of low impact development BMPs to the maximum extent practicable on streets, roads, or highways.

RIVERSIDE COUNTY (COLORADO RIVER REGION) MUNICIPAL SEPARATE STORM SEWER SYSTEM PERMIT

The Riverside County (Colorado River Region) MS4 Permit identifies programs and objectives associated with municipal discharges of stormwater and non-stormwater by the Riverside County Flood Control and Water Conservation District, the County of Riverside, Coachella Valley Water District, and 10 incorporated cities within Eastern Riverside County. For construction activities and new development/significant redevelopment, identification, and implementation of site design BMPs and source control BMPs are required to prevent or minimize water quality impacts from new development and redevelopment projects to the maximum extent practicable.

SAN BERNARDINO COUNTY (SANTA ANA REGION) MUNICIPAL SEPARATE STORM SEWER SYSTEM PERMIT

The San Bernardino County (Santa Ana Region) MS4 Permit identifies programs and objectives associated with municipal discharges of stormwater and non-stormwater by the San Bernardino County Flood Control District, the County of San Bernardino, and 16 incorporated cities within San Bernardino County. The San Bernardino County (Santa Ana Region) MS4 Permit prohibits the

discharges of urban runoff from the permittees' MS4 to waters of the U.S. containing pollutants that have not been reduced to the maximum extent practicable and requires project proponents to first consider preventative and conservation techniques (e.g., preserve and protect natural features to the maximum extent practicable) prior to considering mitigation (structural treatment, such as infiltration systems).

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. Floodplain regulations are adopted and enforced at the local level with floodplain permits issued from the local participating community.

3.9.3 Methods for Evaluating Environmental Effects

The methodology for this service-level evaluation assesses the effects on floodplains, water resources, and hydrologic resources within the Tier 1/Program EIS/EIR Study Area.

GIS layers, USGS topographic maps, and aerial photography from web mapping services were overlaid on the Tier 1/Program EIS/EIR Study Area to identify the existing Special Flood Hazard Areas and water resources that could be affected within the Program Corridor. The GIS layers were used to identify where the Build Alternative Options would be in or cross floodplains or water resources such as rivers and creeks.

Tier 1/Program EIS/EIR Study Area

This service-level evaluation is limited to a desktop evaluation of the data sources described in Section 3.9.3. The Tier 1/Program EIS/EIR Study Area was combined with GIS overlays to identify potential floodplains and hydrologic zones or areas that could be affected by the Program. These potential areas 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 Sources

Data sources included U.S. Department of Agriculture, USGS, FEMA, the SWRCB, and the RWQCBs. The location of watersheds and surface waters were identified using data from the U.S. Department of Agriculture Natural Resource Conservation Service National Cartography and Geospatial Center and the USGS National Hydrology Dataset. Floodplains and flood zones were identified using FEMA floodplain maps. A list of beneficial uses that may be potentially affected by

the Build Alternative Options were identified from the basin plans for the Los Angeles, Santa Ana, and Colorado RWQCBs.

Related Resources

This evaluation incorporates data from related resources to inform the assessment of effects related to floodplains, hydrology, and water quality impacts. These related resources are identified in Table 3.9-1 and include jurisdictional waters and wetland resources and the effects on these resources that overlap with identified water resources.

Table 3.9-1. Related Resource Inputs for Floodplains, Hydrology, and Water Quality

Resource	Input for Floodplain, Hydrology, and Water Quality Assessment
Jurisdictional Waters and Wetland Resources (Section 3.7)	Supplemental information related to the location of potential jurisdictional waters and wetlands resources was used.

3.9.4 Affected Environment

The Program Corridor crosses a large geographic area within Southern California, spanning a distance of approximately 144 miles from its western terminus in Los Angeles to its eastern terminus in Coachella. The topological characteristics within the Program Corridor largely determines the hydrology of the region.

Climatic conditions within the Western Section of the Program Corridor are characterized by generally warm summers and mild winters with moderate humidity and breezes. Within the Eastern Section of the Program Corridor, climatic conditions become increasingly drier and warmer with larger temperature swings from day to night. The area between the Los Angeles Basin and the Coachella Valley experiences variable climatic patterns that are largely driven by the topology of the region. Orographic lift is responsible for much of the precipitation on mountain ranges close to the coast, while the rain shadow effect leads to drier conditions on interior slopes. Overall, the region experiences less precipitation in the summer months than the winter months, which can lead to periods of drought and flooding, sometimes severe.

Floodplains

A floodplain is composed of two major parts: the floodway and the area between the floodway and the limit of the floodplain. The floodway is the main channel of a watercourse that must be kept free of encroachment to discharge flood waters. The minimum standards of the National Flood Insurance Program prohibit development within the floodway unless it can be shown that the development

would not increase the water surface elevation during the 1 percent annual chance flood. Development outside the floodway, but still within the floodplain, is permitted provided the development meets National Flood Insurance Program and any local floodplain regulations. If a portion of the floodplain is also considered a water of the U.S. under Section 404 of the CWA, a USACE permit is required prior to the placement of dredged or fill material.

Flooding is common in Southern California where large amounts of precipitation can fall in a short period of time. Because of the arid climate, vegetation is often sparse, and soils tend to be thin and discontinuous. With little soil to absorb water and little vegetation to hold it back, precipitation runs off quickly and can result in floods. The potential for flooding is higher in urban areas where most of the land is covered with buildings and pavement.

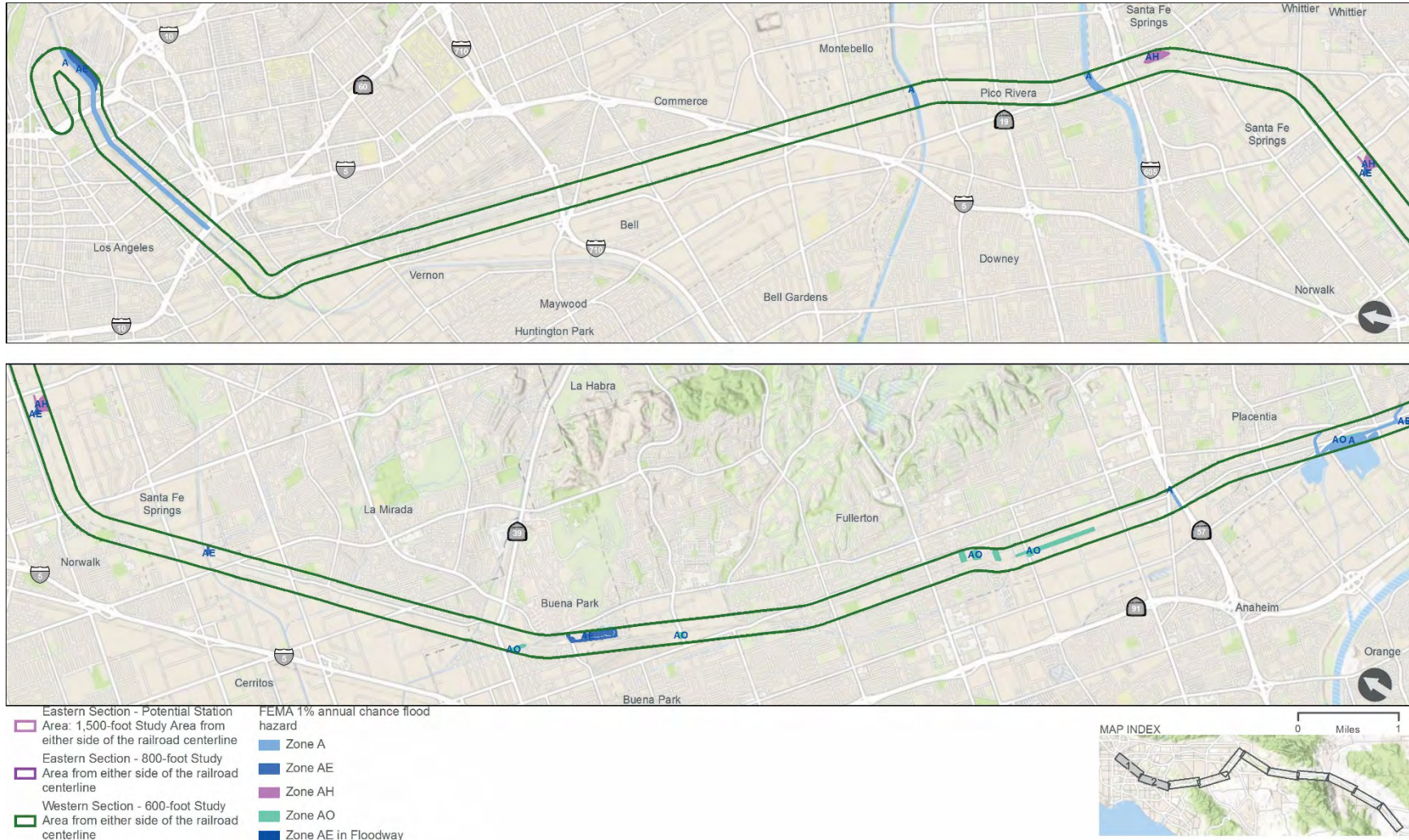
Most major rivers and washes along with smaller washes within the Program Corridor have 1 percent annual chance floodplains and floodways (also known as Zone A areas) mapped by FEMA. The Program Corridor crosses or runs parallel to several valley floodplains and floodways. In some cases, the Program Corridor crosses floodplains and floodways of a single waterbody in multiple locations.

The Special Flood Hazard Areas include Zones A include AO, AH, A1-A30, AE, A99, and AR. These categories reflect the flood risk for that location in the Special Flood Hazard Area. For purposes of this Tier 1/Program EIS/EIR evaluation, anything within a 1 percent annual chance of flooding (Zone A) category is included in the definition of a floodplain.

Figure 3.9-1 depicts the location of floodplains with a 1 percent annual chance of flooding within the Tier 1/Program EIS/EIR Study Area.

Figure 3.9-1. Federal Emergency Management Agency Flood Areas within the Tier 1/Program EIS/EIR Study Area

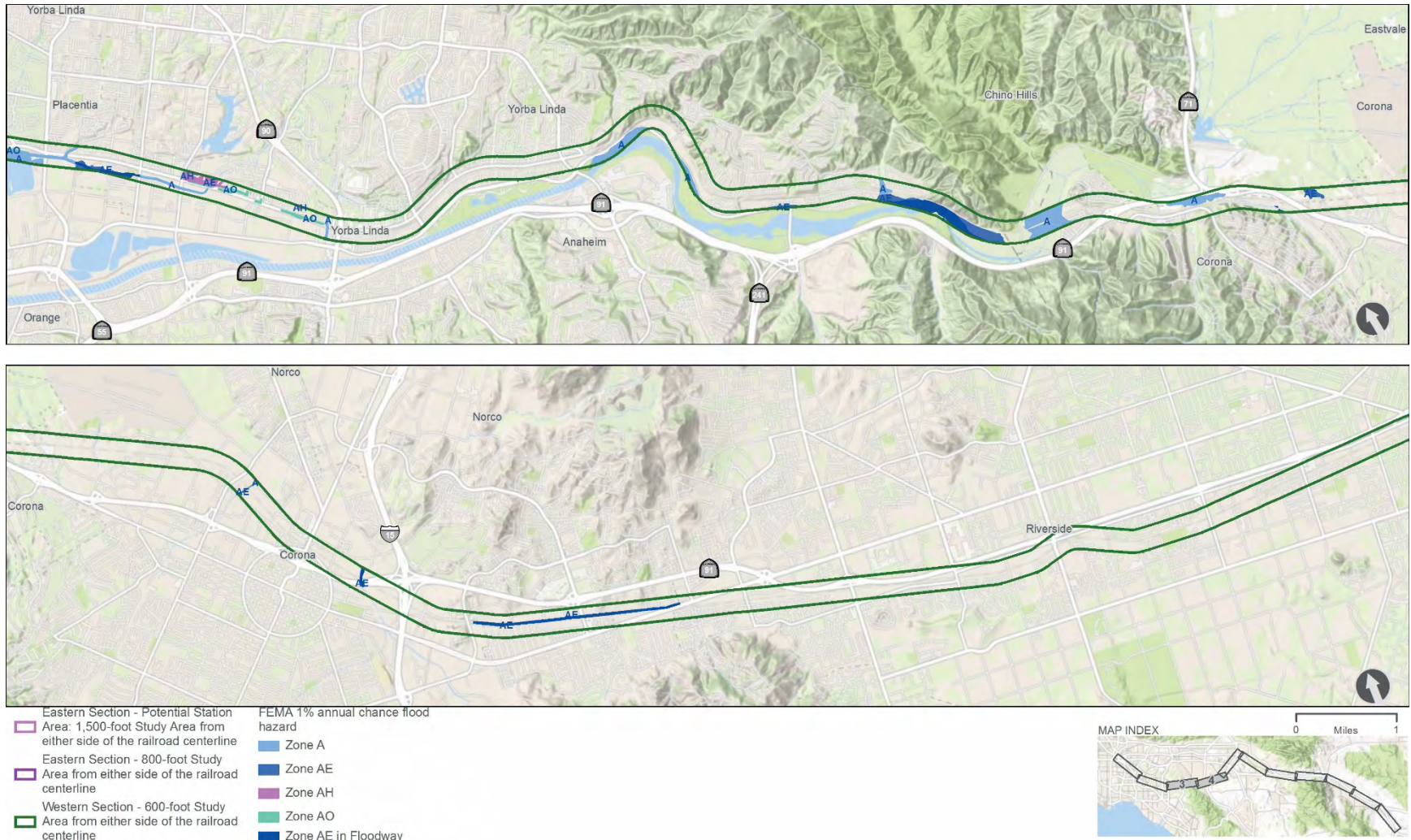
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Figure 3.9-1. Federal Emergency Management Agency Flood Areas within the Tier 1/Program EIS/EIR Study Area

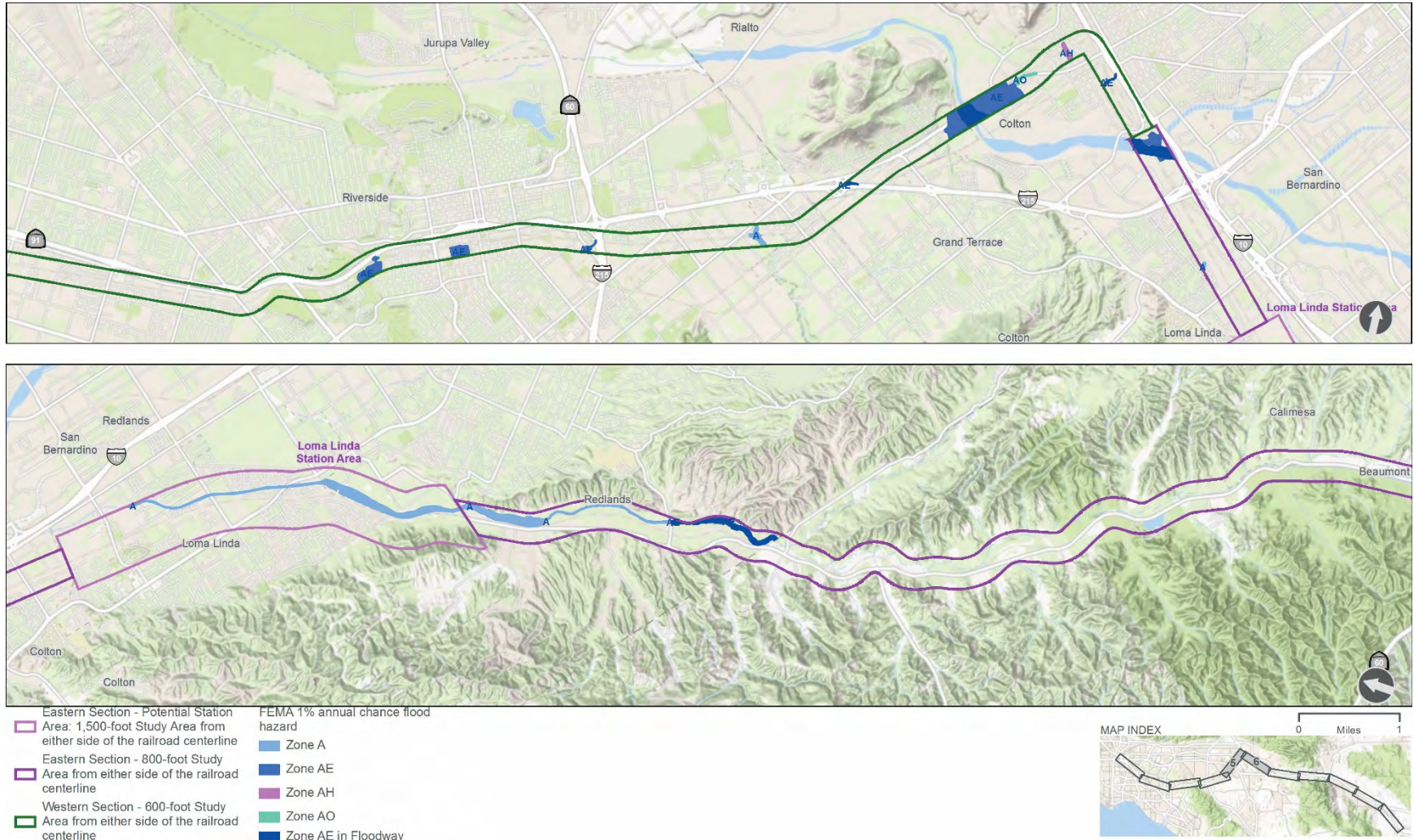
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Figure 3.9-1. Federal Emergency Management Agency Flood Areas within the Tier 1/Program EIS/EIR Study Area

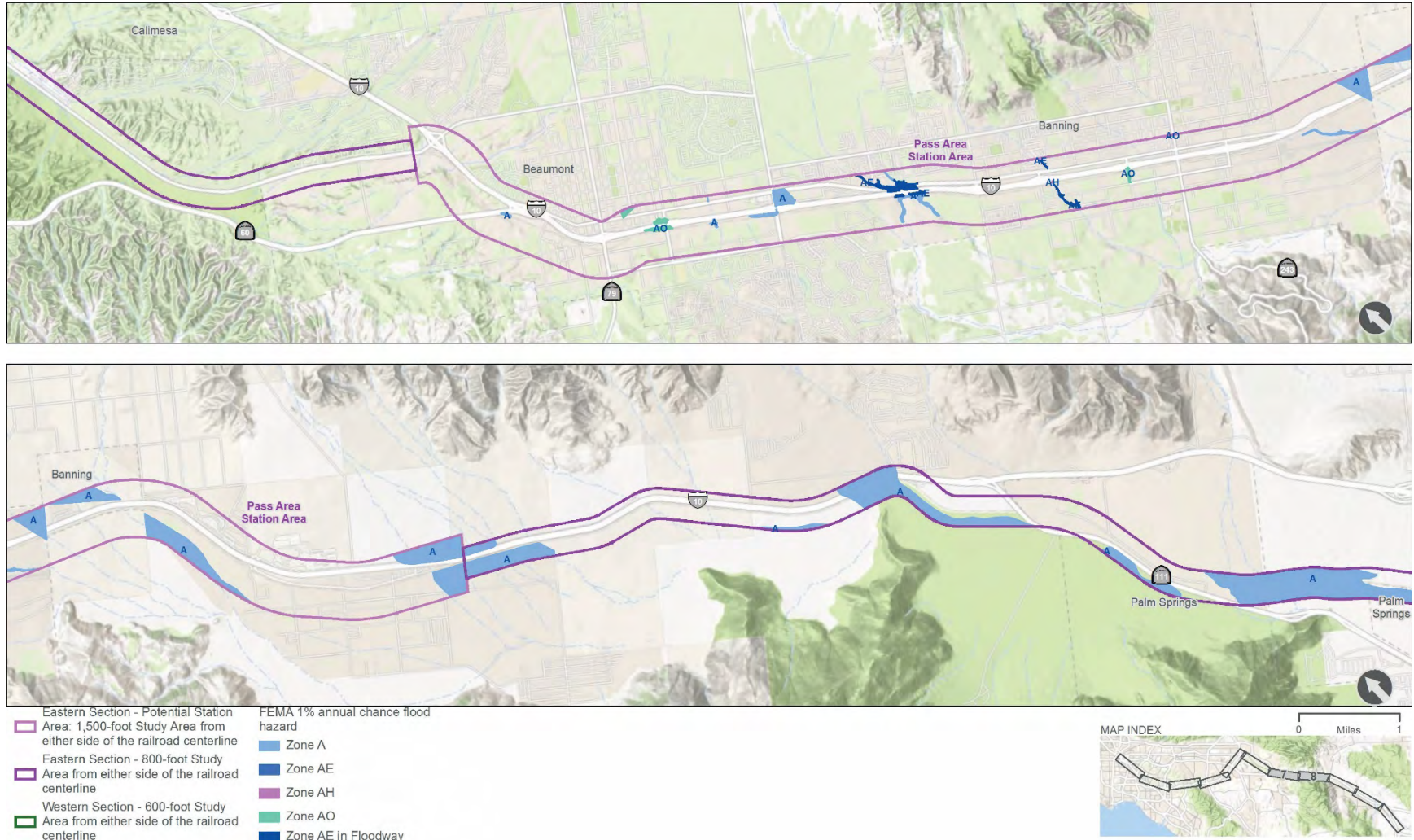
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Figure 3.9-1. Federal Emergency Management Agency Flood Areas within the Tier 1/Program EIS/EIR Study Area

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Figure 3.9-1. Federal Emergency Management Agency Flood Areas within the Tier 1/Program EIS/EIR Study Area

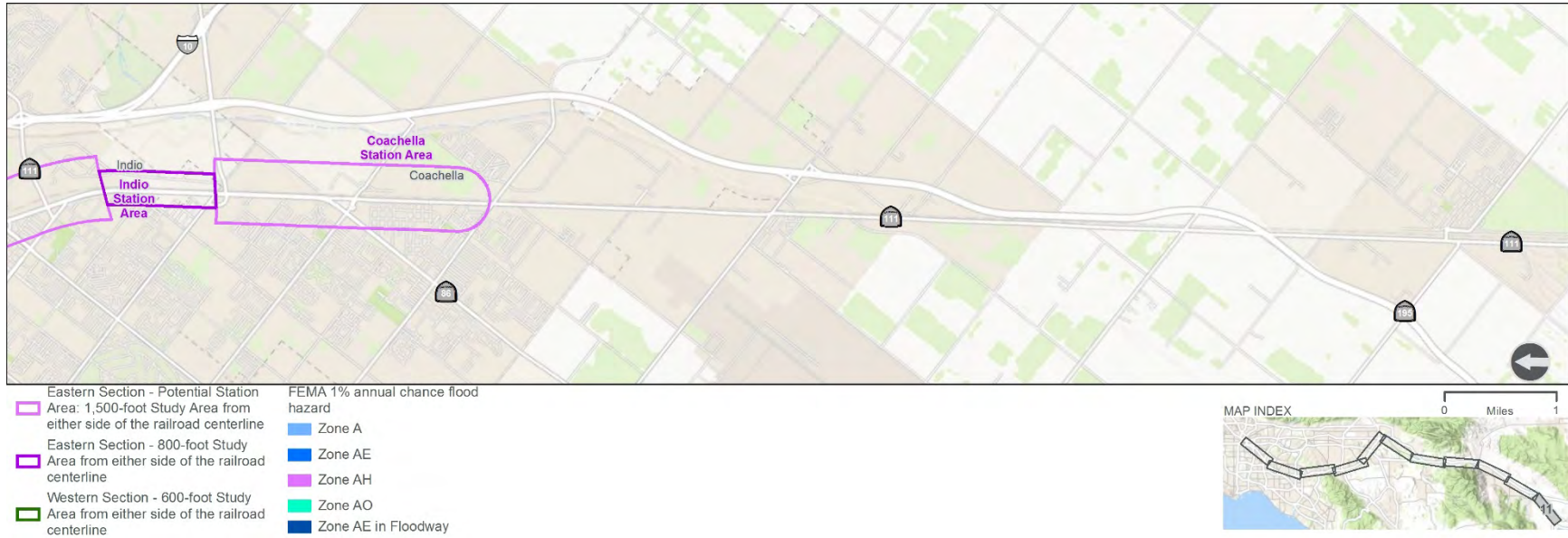
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Figure 3.9-1. Federal Emergency Management Agency Flood Areas within the Tier 1/Program EIS/EIR Study Area

(Page 6 of 6)



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Build Alternative Option 1 (Coachella Terminus)

As shown on Figure 3.9-1, for the Western Section of Build Alternative Option 1, approximately 637.4 acres of land is mapped as being within a 1 percent annual chance of flooding. For the Eastern Section of Build Alternative Option 1, approximately 4,401.3 acres of land is mapped as being within a 1 percent annual change of flooding. Table 3.9-2 provides a summary of mapped floodplain areas within Build Alternative Option 1.

Table 3.9-2. Summary of Floodplains (Build Alternative Options 1, 2, and 3)

Floodplain Zone	Area of Zone within Western Section (acres)	Area of Zone within Eastern Section (acres)	Total Area of Zone (acres)
Zone A	235.7	2,900.5	3,136.2
Zone AE	317.2	101.8	419.0
Zone AH	40.5	0.2	40.7
Zone AO	44.0	1,319.2	1,363.2
Zone AE in floodway	101.4	79.6	181.0

Source: FEMA 2020

Build Alternative Option 2 (Indio Terminus)

Floodplain zones within Build Alternative Option 2 are the same as Build Alternative Option 1.

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

Floodplain zones within Build Alternative Option 3 are the same as Build Alternative Option 1.

Watersheds

USGS divided the U.S. into hydrologic units that are arranged or nested within each other, from the largest geographic area to the smallest geographic area. Each hydrologic unit is identified by a unique hydrologic unit code consisting of 2 to 12 digits based on the levels of classification in the hydrologic unit system (region [2], subregion [4], basin [6], subbasin [8], watershed [10], and subwatershed [12]).

As shown on Figure 3.9-2, the Program Corridor crosses five subbasins: Los Angeles River Watershed, San Gabriel River Watershed, Santa Ana River Watershed, San Jacinto River Watershed, and Salton Sea Watershed.

Build Alternative Option 1 (Coachella Terminus)

Table 3.9-4 summarizes the major water features and watersheds located within Build Alternative Option 1.

Table 3.9-3. Subbasins and Watersheds (Build Alternative Options 1, 2, and 3)

Subbasin	Watershed	Major Water Features
Los Angeles River Watershed	Lower Los Angeles River; Rio Hondo	Los Angeles River, Rio Hondo
San Gabriel River Watershed	Lower Santa Ana River; Middle Santa Ana River; Upper Santa Ana River; Temescal Wash; San Timoteo Wash	San Gabriel River, Coyote Creek
San Jacinto River Watershed	Middle San Jacinto River	— ^a
Santa Ana River Watershed	Colorado Lagoon-Frontal Alamos Bay; Lower San Gabriel River;	Santa Ana River, San Timoteo Creek
Salton Sea Watershed	San Gorgonio River; Headwaters Whitewater River; Little Morongo Creek-Morong Wash; Upper Whitewater River; Middle Whitewater River; Lower Whitewater River	San Gorgonio River, Whitewater River

Source: USGS 2016

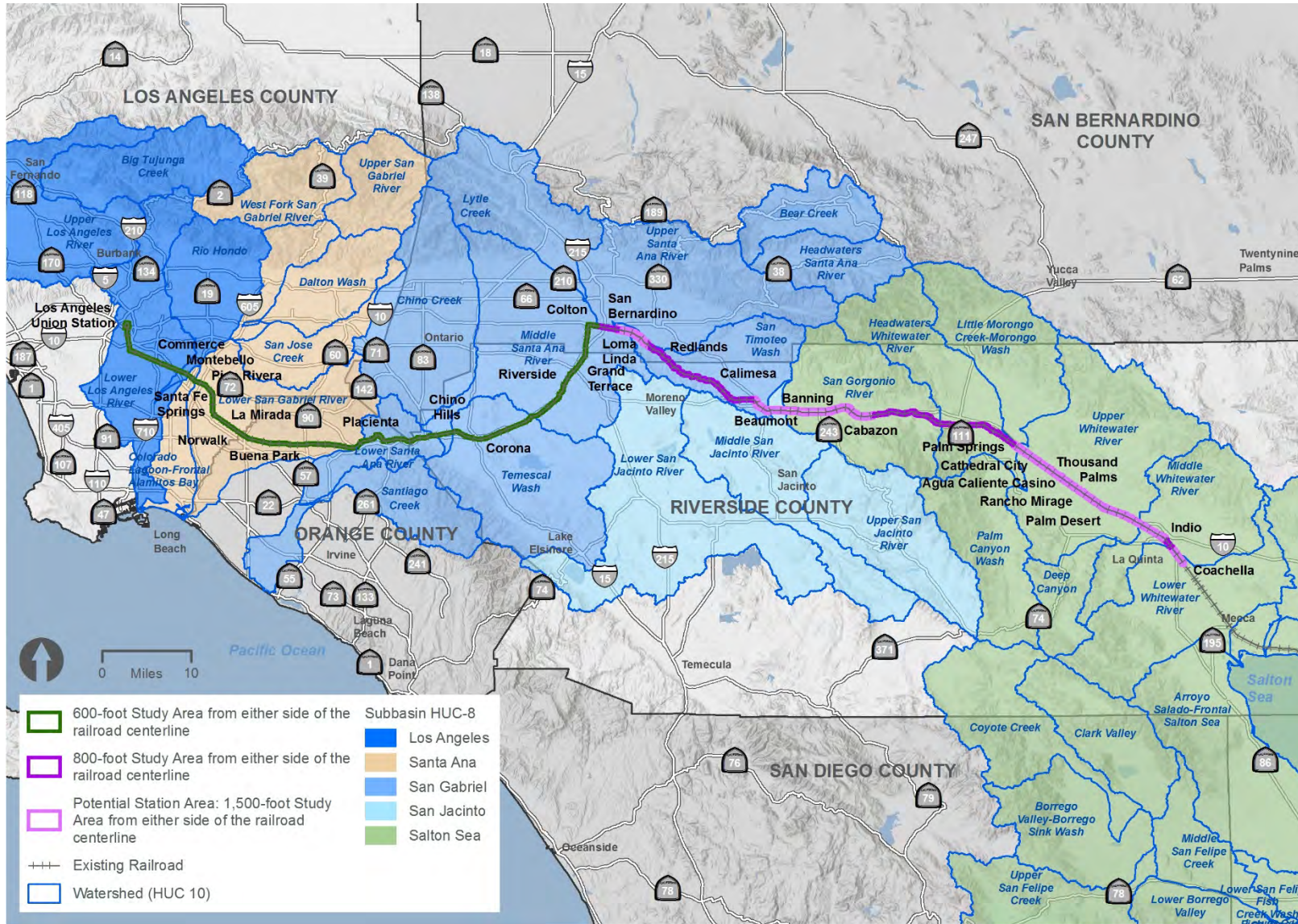
Notes:

^a The Program Corridor passes through a small portion of the San Jacinto River Watershed Subbasin and Middle San Jacinto River Watershed. Within this small portion, no major water features are present.

Build Alternative Option 2 (Indio Terminus)

Subbasins and watersheds within Build Alternative Option 2 are the same as Build Alternative Option 1.

Figure 3.9-2. Subbasins and Watersheds within the Tier 1/Program EIS/EIR Study Area



Source: Department of Forestry and Fire Protection 2019

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

Subbasins and watersheds within Build Alternative Option 3 are the same as Build Alternative Option 2.

Surface Waters

For purposes of this Tier 1/Program EIS/EIR, surface waters include freshwater bodies, such as creeks, streams, rivers, lakes, and ponds, that are above ground. Creeks, streams, and rivers typically run within a defined channel. Lakes and ponds are inundations of water that may or may not be connected to other waterbodies. Surface water quality refers to physical, chemical, and biological characteristics of a waterbody. Water quality determines what activities or functions (drinking, recreation, etc.) are suitable for the waterbody. A waterbody that has poor water quality is referred to as impaired. Streams identified as impaired have established TMDLs. A TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still safely meet water quality standards.

For surface waters within the Program Corridor, natural flows in river and stream headwaters are generally relatively free of pollutants. As water flows from the headwaters through mountain streams and into the valley or basin, streams and rivers tend to accumulate both natural and anthropogenic pollutants. In relation to water quality, pollutant sources typically fall into two broad categories: point sources, such as outfalls or direct discharges, and non-point sources, which are sources of pollution diffused across the landscape. As natural flow volumes decrease seasonally during the dry summer months, concentrations of pollutants increase. Stormwater and irrigation runoff enter streams directly as overland subsurface flows or direct discharges; therefore, surrounding land uses affect surface water quality. Urban development, industry, wastewater treatment facilities, dams and reservoirs, and many other human activities have substantial effects on water quality. Urban and irrigation runoff can carry the dissolved or suspended residue of both natural and human land use practices within the watershed. Pollutant sources in urban areas include parking lots and streets; residential, commercial, and industrial development; rooftops; exposed earth at construction sites; non-landscaped, undeveloped areas; and petroleum-fueled railroads.

Water quality is determined and enforced at the state level, based on standards set by both the state and federal government. The water quality of surface water features within the Program Corridor is regulated through regional water quality control plans known as a basin plan. To protect these features, the Los Angeles, Santa Ana, and Colorado RWQCBs have established the beneficial uses and water quality objectives for each surface water feature. Water quality objectives are levels of pollutants above or below which that pollutant would reasonably expect to impair a beneficial use. When beneficial uses are impaired by a pollutant that chronically exceeds its water quality objective,

the RWQCBs place the waterbody and pollutant on the CWA Section 303(d) list of water quality impairments. Once a waterbody is placed on the 303(d) list, the RWQCBs must begin developing a TMDL program that provides a programmatic response to the impairment for the waterbody to meet the water quality objective and continue to support its beneficial uses.

Table 3.9-4 provides the definitions for the beneficial uses within these basin plans.

Table 3.9-5 summarizes the beneficial uses of waterbodies in the Program Corridor.

Table 3.9-4. Water Resource Beneficial Use Definitions

Beneficial Use	Beneficial Use Definition
MUN	Uses of water for community, military, or individual water supply systems, including, but not limited to, drinking water supply
AGR	Uses of water for farming, horticulture, or ranching, including, but not limited to, irrigation, stock watering, and support of vegetation for range grazing
IND	Uses of water for industrial activities that do not depend primarily on water quality, including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, and oil well repressurization
FRSH	Uses of water for natural or artificial maintenance of surface water quantity or quality
PROC	Uses of water for industrial activities that depend primarily on water quality
GWR	Uses of water for natural or artificial recharge of groundwater for purposes of future extraction, maintenance of water quality, or halting of saltwater intrusion into freshwater aquifers
WARM	Uses of water that support warmwater ecosystems, including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates
COLD	Uses of water that support cold water ecosystems, including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates
WILD	Uses of water that support terrestrial ecosystems, including, but not limited to, preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources
RARE	Uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened, or endangered
POW	Uses of water for hydropower generation

Beneficial Use	Beneficial Use Definition
WET	Uses of water that support wetland ecosystems, including, but not limited to, preservation or enhancement of wetland habitats, vegetation, fish, shellfish, or wildlife; and unique wetlands functions that enhance water quality, such as providing flood and erosion control, streambank stabilization, and filtration and purification of naturally occurring contaminants
REC1	Uses of water for recreational activities involving body contact with water where ingestion of water is reasonably possible, including, but not limited to, swimming, wading, water skiing, skin and scuba diving, surfing, white water activities, fishing, or use of natural hot springs
REC2	Uses of water for recreational activities involving proximity to water but not normally involving body contact with water where ingestion of water is reasonably possible, including, but not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities

Sources: Los Angeles RWQCB 2014; Santa Ana RWQCB 2016; Colorado River RWQCB 2017

Notes:

AGR=agriculture supply; COLD=cold freshwater habitats; FRSH=freshwater replenishment; GWR=groundwater recharge; IND=industrial service supply; MUN=municipal and domestic water supply; POW=hydropower generation; PROC=industrial process supply; RARE=rare, threatened, or endangered species; REC1=water contact recreation; REC2=non-contact water recreation; WARM=warm freshwater habitat; WET=wetland habitat; WILD=wildlife habitat

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Table 3.9-5. Beneficial Uses of Potentially Affected Surface Waters within the Program Corridor

Potentially Affected Waterbody	MUN	AGR	IND	FRSH	PROC	GWR	WARM	COLD	WILD	RARE	POW	WET	REC1	REC2
Los Angeles River	P*	—	P	—	—	E	E	—	P	—	—	—	E	E
Rio Hondo	P*	—	—	—	—	I	P	—	I	—	—	—	P	E
San Gabriel River	P*	—	P	—	P	I	I	—	E	E	—	—	E	E
La Mirada Creek	P*	—	P	—	P	—	P	—	P	E	—	—	P	I
Coyote Creek	P*	—	P	—	P	—	P	—	P	E	—	—	P	I
Brea Creek	P*	—	P	—	P	—	P	—	P	E	—	—	P	I
Fullerton Creek	P*	—	P	—	P	—	P	—	P	E	—	—	P	I
Anaheim Lake	+	—	—	—	—	E/P	E/P	—	E/P	—	—	—	E/P	E/P
Carbon Canyon Creek	E/P	—	E/P	—	—	—	E/P	—	E/P	E/P	—	—	E/P	E/P
Santa Ana River	+	—	—	—	—	—	E/P	—	E/P	E/P	—	—	E/P	E/P
Temescal Wash	+	E/P	E/P	—	—	E/P	E/P	—	E/P	—	—	—	E/P	E/P
Tequesquite Arroyo	+	—	—	—	—	E/P	E/P	—	E/P	—	—	—	E/P	E/P
San Timoteo Wash/Creek	+	—	—	—	—	E/P	E/P	—	E/P	—	—	—	E/P	E/P

Potentially Affected Waterbody	MUN	AGR	IND	FRSH	PROC	GWR	WARM	COLD	WILD	RARE	POW	WET	REC1	REC2
Yucaipa Creek	+	—	—	—	—	E/P	E/P	—	E/P	—	—	—	E/P	E/P
Little San Gorgonio Creek	+	—	—	—	—	E/P	E/P	—	E/P	—	—	—	E/P	E/P
Noble Creek	+	—	—	—	—	E/P	E/P	—	E/P	—	—	—	E/P	E/P
San Gorgonio River	P	E	—	—	—	E	—	E	E	—	—	—	E	E
Potrero Creek	P	E	—	—	—	E	E	—	E	—	—	—	E	E
Mission Creek	P	E	—	—	—	E	E	—	E	—	—	—	E	E
Morongo Wash	P	E	—	—	—	E	E	—	E	—	—	—	E	E
Whitewater River	E	E	—	—	—	E	I	E	E	—	E	—	E	E
Unlisted Perennial and Intermittent Streams	P	—	—	E	—	I	—	—	—	—	—	—	—	—

Sources: Los Angeles RWQCB 2014; Santa Ana RWQCB 2016; Colorado River RWQCB 2017

Notes:

* Asterisked MUN designations are exempted

+ The waterbody has been specifically excepted from the MUN designation

AGR=agriculture supply; COLD=cold freshwater habitats; E=existing beneficial use; FRSH=freshwater replenishment; GWR=groundwater recharge; I=intermittent beneficial use; IND=industrial service supply; MUN=municipal and domestic water supply; P=potential beneficial use; POW=hydropower generation; PROC=industrial process supply; RARE=rare, threatened, or endangered species; REC1=water contact recreation; REC2=non-contact water recreation; WARM=warm freshwater habitat; WET=wetland habitat; WILD=wildlife habitat

Build Alternative Option 1 (Coachella Terminus)

Six rivers, 26 named drainages, and 1 named lake are within Build Alternative Option 1. In addition to the named waters, numerous unnamed ephemeral washes traverse Build Alternative Option 1. The descriptions and maps for waterbodies are included as part of Appendix G of this Tier 1/Program EIS/EIR.

Table 3.9-6 provides a summary of the named waters with water quality impairments (TMDLs) within Build Alternative Option 1.

Table 3.9-6. Named Surface Waters with Pollutant Impairments (Build Alternative Options 1, 2, and 3)

Waterbody Name	Pollutant Impairment
Los Angeles River	Ammonia, coliform bacteria, copper, lead, nutrients (algae), oil, and trash
Rio Hondo	Cyanide, coliform bacteria, copper, lead, toxicity, trash, zinc, and potential of hydrogen
San Gabriel River	Temperature, cyanide, and lead
Coyote Creek	Indicator bacteria, Iron, malathion, potential of hydrogen, and toxicity
Santa Ana River	Lead, bacteria, and copper
Warm Creek	Bacteria
San Timoteo Wash/Creek	Bacteria

Source: USGS 2017; SWRCB 2018

Build Alternative Option 2 (Indio Terminus)

Waterbodies with identified pollutant impairments within Build Alternative Option 2 are the same as Build Alternative Option 1.

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

Waterbodies with identified pollutant impairments within Build Alternative Option 3 are the same as Build Alternative Option 1.

Groundwater

Groundwater is a component of the hydrologic cycle and is found in subsurface water-bearing formations. A groundwater basin is defined as a hydrogeologic unit containing one large aquifer or

several connected and interrelated aquifers. Further, a groundwater basin is an area underlain by permeable materials capable of furnishing a significant supply of groundwater to wells or storing a significant amount of water and has reasonably well-defined boundaries in a lateral direction and a definable bottom. Groundwater basins may be recharged naturally as precipitation infiltrates and/or artificially with imported or reclaimed water. Alternately, groundwater may discharge naturally by flowing into a stream, lake, or ocean, by flowing to the surface as a spring or seep or extracted by a well. The Program Corridor crosses multiple groundwater basins.

Build Alternative Option 1 (Coachella Terminus)

Table 3.9-7 provides a summary of the groundwater basins located within Build Alternative Option 1.

Table 3.9-7. Groundwater Basins (Build Alternative Options 1, 2, and 3)

Groundwater Basin Name	Beneficial Use Designations
Coastal Plan of Los Angeles – Central	MUN, IND, PROC, AGR
Coachella Valley – San Gorgonio Pass	MUN, IND, AGR
Coachella Valley - Indio	MUN, IND, AGR
San Jacinto	MUN, IND, PROC, AGR
San Gabriel Valley	MUN, IND, PROC, AGR
Upper Santa Ana Valley	MUN, IND, PROC, AGR
Upper Santa Ana Valley – Chino	MUN, IND, PROC, AGR
Upper Santa Ana Valley – Riverside-Arlington	MUN, IND, PROC, AGR
Upper Santa Ana Valley – Rialto-Colton	MUN, IND, PROC, AGR
Upper Santa Ana Valley – San Bernardino	MUN, IND, PROC, AGR
Upper Santa Ana Valley – San Timoteo	MUN, IND, PROC, AGR

Source: Los Angeles RWQCB 2014; Santa Ana RWQCB 2016; Colorado River RWQCB 2017

Notes:

AGR=agriculture supply; IND=industrial service supply; MUN=municipal and domestic water supply; PROC=industrial process supply

Build Alternative Option 2 (Indio Terminus)

Groundwater basins within Build Alternative Option 2 are the same as Build Alternative Option 1.

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

Groundwater basins within Build Alternative Option 3 are the same as Build Alternative Option 1.

Tsunami Inundation and Seiche Areas

Tsunamis are most commonly associated with oceans, which can generate waves of massive and devastating height upon hitting coastlines. Official tsunami inundation maps prepared by the California Geological Survey (CSG), California Office of Emergency Services, and the Tsunami Research Center at the University of Southern California reflect the maximum potential tsunami run-up from a number of tsunami sources. Since the Program Corridor is not located adjacent to ocean frontage, there is no oceanic tsunami risk within the Tier 1/Program EIS/EIR Study Area. For the inland waterbodies, the following seiche discussion addresses all types of waterbody wave hazards, regardless of source or type.

A seiche is an underwater wave that oscillates through a body of water that could result in localized flooding at a lake's shore. Seiches can be caused by high winds, earthquakes, or underwater landslides. In terms of seiche hazards within the Program Corridor, the region's semi-arid climate makes naturally occurring enclosed waterbodies uncommon. Only two waterbodies, Lake Perris and Lake Elsinore, are of any concern relative to potential hazards from seismically induced seiche. The Program Corridor does not cross or is not adjacent to Lake Perris or Lake Elsinore.

3.9.5 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 floodplains, hydrology, and water quality would be anticipated as a result of constructing any of the Build Alternative Options.

Most effects on floodplains, hydrology, and water quality would occur during construction when ground-disturbing activities could result in the addition of pollutants to surface and groundwater, increased erosion and siltation, and shifts in existing drainage patterns. Additionally, fuel oils, chemicals, or concrete leachate could be spilled during construction activities. An increase in sediment loading and turbidity from grading and filing activities could contribute sediment-laden runoff to surface and groundwater, thereby degrading water quality.

Operational or long-term effects would include the addition of pervious surfaces, which could contribute to increased polluted runoff, result in changes to existing drainage patterns, and affect groundwater recharge.

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 proposed Program associated with this service-level evaluation. Because no physical changes would occur, no effects related to floodplains, hydrology or water quality are anticipated under the No Build Alternative.

Build Alternative Options 1, 2, and 3

Floodplain and Flooding Effects

CONSTRUCTION

Western Section. The Build Alternative Options would not require construction of additional rail or station infrastructure in the Western Section of the Program Corridor because the existing rail infrastructure and stations from LAUS to Colton would be used. When compared with the No Build Alternative, short-term/temporary effects related to floodplains or flooding would be negligible because no additional construction activities are planned within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. As shown on Figure 3.9-1, the Build Alternative Options traverse FEMA-mapped floodplains. Construction activities associated with the Build Alternative Options could have temporary impacts in or adjacent to floodplains. This could include parking vehicles or storing equipment or materials in a floodplain or having construction equipment in the floodplain for short periods of time. Elements of linear construction projects often include access roads, staging areas, temporary access roads, and areas of earth excavation or temporary soil storage. These temporary effects would occur only during the construction phase for a site-specific project and would comply with all local, state, and federal floodplain regulations.

New rail infrastructure improvements and station facilities contemplated under the Build Alternative Options would cross and likely permanently encroach on several floodplains. Depending on how close a passenger rail line might be to the existing rail tracks, this could include adding track and sidings, widening or replacing bridges, and replacing or extending culverts. Until Tier 2/Project-level studies define the site-specific improvements, the amount of floodplain affected cannot be determined.

When compared with the No Build Alternative, Build Alternative Option 1 could have a moderate effect on floodplains 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 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.

Potential avoidance and minimization of impacts on floodplains would be further evaluated in the Tier 2/Project-level analysis. Any proposed encroachments in a floodplain area for rail infrastructure improvements or station facilities would require coordination with the local floodplain administrators to discuss floodplain development permitting and potential site-specific mitigation measures.

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 Indio/Coachella. Operation of these additional passenger trains would not require additional modification or encroachment into floodplains. Therefore, 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.

Eastern Section. Operational effects associated with floodplains for the Build Alternative Options within the Eastern Section would be the same as those identified for the Western Section of the Program Corridor. Effects associated with the Eastern Section of the Program Corridor under Build Alternative Options 1, 2, and 3 would be negligible when compared with the No Build Alternative.

Water Quality Effects

CONSTRUCTION

Western Section. The Build Alternative Options would not require construction of additional rail or station infrastructure in the Western Section of the Program Corridor because the existing rail infrastructure and stations from LAUS to Colton would be used. When compared with the No Build Alternative, short-term/temporary effects related to water quality would be negligible because no additional construction activities are planned within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Construction of Build Alternative Option 1, 2, or 3 in the Eastern Section of the Program Corridor would require the construction of rail stations, reconfiguration of existing or creation of new rail infrastructure (sidings, additional main line track, wayside signals, drainage, and grade-separation structures), and potential ROW acquisition. These construction activities may require grading, implementation of temporary stream diversions, and use of construction staging

areas, which could result in effects on water quality within the area. Construction effects on water quality could include an increase in sediment volume in stormwater, increases in pollutant loading in runoff, and pollutant discharges into receiving waters and groundwater systems.

Although construction activities have the potential to affect water quality within the Eastern Section of the Program Corridor, improvements identified under any of the Build Alternative Options would be required to comply with the federal, state, and local permitting requirements that regulate water quality. These regulations include CWA Section 401, CWA Section 404, CDFW Section 1600, and the RWQCB Construction General Permit. Through these regulations and requirements, the development of proposed rail infrastructure and station facilities would require temporary and permanent BMPs. These BMPs could include sediment traps, velocity dissipation devices (i.e., check dams and outfall protection), and detention/retention/infiltration facilities and would be incorporated into construction activities to reduce short-term increases in sediment transport caused by temporary hydromodification effects during construction.

The type and identification of the BMPs that would be used with future construction activities, and to what extent, cannot be determined at this time, as the sites where rail infrastructure and station improvements would be constructed have not yet been selected. During Tier 2/Project-level analysis, detailed and specific evaluation of water quality effects would be completed once design details are known.

When compared with the No Build Alternative, Build Alternative Option 1 could have a moderate effect on water quality 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 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 Indio/Coachella. The operation of the additional two daily round-trip intercity diesel-powered passenger trains within the Western Section of the Program Corridor would consist of ongoing maintenance along the tracks, maintenance facilities, and at existing stations, similar to existing conditions. These operational activities would require the use and transport of materials and

substances (e.g., petroleum, oils, and lubricants). While petroleum, oils, and lubricants would be used in rail operations or maintenance, proper use, storage, and disposal practices would minimize the potential for accidental releases, similar to existing conditions. 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.

Eastern Section. Operational effects on water quality under the Build Alternative Options would mainly be associated with stormwater runoff generated during operation and maintenance activities. Stormwater runoff may contain sediment, nutrients, pesticides, petroleum derivatives, solid wastes, or other chemicals and metals that could enter receiving waters within the Eastern Section of the Program Corridor.

The Build Alternative Options would result in the addition of new or modified impervious surfaces from new stations and the new track and at-grade separations. Introducing impervious surfaces where they currently do not exist would have the potential to increase the rate and amount of stormwater runoff and could potentially cause erosion in areas adjacent to the new impervious surfaces. The placement of new impervious surfaces could result in effects on the existing runoff rates to receiving waters (i.e., hydromodification), including increases in low flow and peak flow velocity and volume. This could result in corresponding water quality effects, such as mobilization of new pollutants from the impervious surface, bed and bank erosion and sedimentation, and habitat loss.

Similar to construction effects identified for the Eastern Section of the Program Corridor, operational activities envisioned under the Build Alternative Options would require compliance with federal, state, and local permitting requirements that regulate water quality. These requirements may include regulatory compliance with the local MS4 Permits and implementation of low impact development features and BMPs, depending on the extent of the work and the impervious area being added or replaced. For any improvements within the Caltrans ROW, the Build Alternative Options would comply with the Caltrans MS4 Permit requirements. To offset the potential hydrology effects associated with new impervious surfaces and new sources of pollutants, Tier 2/Project-level design would include low impact development features and permanent BMPs to avoid potential permanent hydromodification and water quality effects.

This Tier 1/Program EIS/EIR evaluation does not identify the nature or potential of operational water quality effects at specific sites because the sites where rail infrastructure improvements and station facilities would be constructed has not yet been selected. The Tier 2/Project-level analysis would evaluate site specific impacts associated with operational water quality. When compared with the No Build Alternative, Build Alternative Option 1 could have a substantial effect on water quality within the Eastern Section of the Program Corridor. Although there are programs and regulations in place

to reduce, minimize, and avoid effects on water quality, the operation of new stations and rail infrastructure could potentially result in long-term effects from pollutant discharge into receiving waters in the area. 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 substantial 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 substantial when compared with the No Build Alternative.

3.9.6 NEPA Summary of Potential Effects

Table 3.9-8 and Table 3.9-9 summarizes 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 types of resources that may be affected and, more importantly, the relative magnitude of the effect.

Table 3.9-8. NEPA Summary of Effects on Flooding

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

Notes:

^a The No Build Alternative, as identified, includes existing and potential expansion of roadway, passenger rail, and air travel facilities within the Tier 1/Program EIS/EIR Study Area; however, for the service-level evaluation, identifying levels of effect from potential expansion of those facilities is speculative and would be dependent on Tier 2/Project-level analysis.

Table 3.9-9. NEPA Summary of Effects on Water Quality

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

Notes:

^a The No Build Alternative, as identified, includes existing and potential expansion of roadway, passenger rail, and air travel facilities within the Tier 1/Program EIS/EIR Study Area; however, for the service-level evaluation, identifying levels of effect from potential expansion of those facilities is speculative and would be dependent on Tier 2/Project-level analysis.

3.9.7 CEQA Summary of Potential Impacts

Based on the information provided in Sections 3.9.4 and 3.9.5, and considering the CEQA Guidelines Appendix G Checklist questions for hydrology and water quality, the Build Alternative Options would have potentially significant impacts on hydrology and water quality when reviewed on a Program-wide basis. Placing the infrastructure improvements and new stations largely within or along the existing ROW reduces the potential for significant impacts on these resources. However, because the sites have not been selected, some resources may be significantly impacted. At the Tier 1/Program analysis level, it is not possible to precisely know the location, extent, and characteristics of impacts on these resources or areas. Proposed programmatic mitigation strategies discussed in Section 3.9.8 will be applied to reduce potential impacts.

Table 3.9-10 summarizes the CEQA significance conclusions for the Build Alternative Options; the proposed programmatic mitigation strategies that could be applied to minimize, reduce, or avoid the potential impacts; and the significance determination after mitigation strategies are applied. The identification and implementation of additional site-specific mitigation measures necessary for Project implementation would occur as part of the Tier 2/Project-level analysis.

Table 3.9-10. CEQA Summary of Impacts for Hydrology and Water Quality

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<i>Would the Program violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?</i>		
<i>Construction</i>		
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 construction impacts are dependent on the location of rail infrastructure improvements, station facilities, and type of construction activities that would be required. Construction activities could impact water quality by creating debris and pollutants like concrete waste and sediment. Due to the variety of potential construction techniques and numerous waterways and drainages in the Eastern Section, site-specific impacts and associated BMPs to minimize impacts cannot be determined at this time. However, the Tier 2/Project-level analysis would evaluate site-specific impacts associated with water quality.	HWQ-2 LU-3	Less than Significant. HWQ-2 and LU-3 would minimize, reduce, or avoid potential impacts related to violating water quality standards and waste discharge requirements by requiring compliance with applicable regulations and further evaluation during the Tier 2/Project-level analysis.

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Operation		
<p>Western Section – Less Than Significant. The change in train service (two additional round-trip daily trains within the Program Corridor) on an existing rail corridor would require maintenance of existing infrastructure. However, with adherence to existing developed maintenance plans and procedures, maintenance activities on the existing rail corridor would not violate water quality standards or waste discharge requirements within the area. Therefore, a less than significant impact under Build Alternative Option 1, 2, or 3 is anticipated to occur at the Tier 1/Program EIS/EIR evaluation level.</p>	Not applicable	Not applicable
<p>Eastern Section – Potentially Significant. Introducing new impervious surfaces and buildings where they currently do not exist would have the potential to increase the rate and amount of stormwater runoff that could enter receiving waters. The generation of new stormwater sources may contain sediment, nutrients, pesticides, petroleum derivatives, solid wastes, or other chemical and metals that could degrade water quality in the area if not properly managed. The Tier 2/Project-level analysis would identify and evaluate the potential for changes in water quality associated with site-specific projects.</p>	<p>HWQ-3 LU-3</p>	<p>Potentially Significant. HWQ-3 and LU-3 would minimize, reduce, or avoid potential impacts associated with water quality standards and waste discharge requirements through design and further analysis. However, impacts may remain significant and unavoidable as further analysis may determine that operational activities would result in water quality impacts.</p>
<p><i>Would the Program substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Program may impede sustainable groundwater management of the basin?</i></p>		
Construction		
<p>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.</p>	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>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. Water used in construction (such as water used for concrete batching or preparation of mortar), would need to meet certain parameters, as water quality affects the overall strength of concrete. However, the siting of new rail infrastructure improvements and station facilities may encroach on areas that are identified for groundwater recharge activities. The Tier 2/Project-level analysis would identify and evaluate impacts on specific groundwater resources once site-specific projects are known.</p>	<p>LU-3</p>	<p>Less than Significant. LU-3 would minimize, reduce, or avoid potential impacts related to groundwater supplies by identifying groundwater depths in the Tier 2/Project-level Study Area and minimizing infrastructure improvements in those areas.</p>
<p>Operation</p>		
<p>Western Section – No Impact. The change in train service (two additional round-trip daily trains within the Program Corridor) on an existing rail corridor would require maintenance of existing infrastructure. However, these maintenance activities on the existing rail corridor do not require groundwater supplies and would not decrease groundwater supplies or interfere substantially with groundwater recharge within the area. Therefore, no impacts are anticipated to occur at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>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 groundwater supplies.</p>	<p>UTL-1 LU-3</p>	<p>Potentially Significant. UTL-1 and LU-3 would minimize, reduce, or avoid potential impacts associated with groundwater supplies through design and further analysis. However, impacts may remain significant and unavoidable, as further analysis may determine that operational activities would result in groundwater supply impacts.</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Would the Program substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on-or off-site?</p>		
<p>Construction</p>		
<p>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.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – Potentially Significant. Potential construction impacts associated with erosion or siltation are dependent on the location of rail infrastructure improvements and station facilities, which are currently unknown. The construction of these improvements and facilities has the potential to alter the existing drainage patterns of the site through the addition of new impervious surfaces and structures. The Tier 2/Project-level analysis would identify and evaluate impacts associated with site-specific drainage pattern changes.</p>	<p>HWQ-2 LU-3</p>	<p>Less than Significant. HWQ-2 and LU-3 would minimize, reduce, or avoid potential impacts from erosion or siltation by requiring compliance with applicable regulations. Erosion and sediment control BMPs would be identified to minimize, reduce, or avoid potential impacts from erosion or siltation.</p>
<p>Operation</p>		
<p>Western Section – No Impact. The change in train service (two additional round-trip daily trains within the Program Corridor) on an existing rail corridor would require maintenance of existing infrastructure. However, these maintenance activities do not require the alteration of existing drainage patterns or the addition of new impervious surfaces. Therefore, no impacts are anticipated to occur at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – No Impact. Operational activities would consist of ongoing maintenance of existing infrastructure and would not require the alteration of existing drainage patterns or the addition of new impervious surfaces once construction is complete. Therefore, no impacts are anticipated to occur at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p><i>Would the Program substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?</i></p>		
<p><i>Construction</i></p>		
<p>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.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – Potentially Significant. Potential construction impacts related to surface runoff rate and volume increases are dependent on the location of rail infrastructure improvements and station facilities. The construction of these improvements and facilities has the potential to alter the existing drainage patterns of the site and flood flows within the area. There are numerous drainages, waterways, and floodplains in the Tier 1/Program EIS/EIR Study Area, but a detailed analysis on how drainage patterns and flood flow could change cannot be considered at the Tier 1/Program EIS/EIR level, as the locations of infrastructure and facilities is unknown. The Tier 2/Project-level analysis would identify and evaluate impacts associated with site-specific drainage patterns and flood flow changes.</p>	<p>HWQ-1 LU-3</p>	<p>Less than Significant. HWQ-1 and LU-3 would minimize, reduce, or avoid potential impacts from surface runoff by requiring compliance with applicable regulations and additional analysis during the Tier 2/Project-level analysis.</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Operation		
<p>Western Section – No Impact. The change in train service (two additional round-trip daily trains within the Program Corridor) on an existing rail corridor would require maintenance of existing infrastructure. However, these maintenance activities do not require the alteration of existing drainage patterns or the addition of new impervious surfaces. Therefore, no impacts are anticipated to occur at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	Not applicable	Not applicable
<p>Eastern Section – No Impact. Operational activities would consist of ongoing maintenance of existing infrastructure and would not require the alteration of existing drainage patterns or the addition of new impervious surfaces once construction is complete. Therefore, no impacts are anticipated to occur at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	Not applicable	Not applicable
<p><i>Would the Program substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?</i></p>		
Construction		
<p>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.</p>	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Potentially Significant. Potential construction impacts related to surface runoff rate and volume increases are dependent on the location of rail infrastructure improvements and station facilities. The construction of these improvements and facilities has the potential to alter the existing drainage patterns of the site. There are numerous drainages, waterways, and floodplains in the Tier 1/Program EIS/EIR Study Area, but a detailed analysis on how drainage patterns could change cannot be considered at the Tier 1/Program EIS/EIR level as the locations of infrastructure and facilities is unknown. The Tier 2/Project-level analysis would identify and evaluate impacts associated with site-specific drainage patterns.</p>	<p>LU-3</p>	<p>Less than Significant. LU-3 would minimize, reduce, or avoid potential impacts from surface runoff by requiring compliance with applicable regulations and additional analysis during the Tier 2/Project-level analysis.</p> <p>LU-3 would minimize, reduce, or avoid potential impacts on stormwater drainage systems by requiring compliance with applicable regulations and additional analysis during the Tier 2/Project-level analysis.</p>
<p>Operation</p>		
<p>Western Section – No Impact. The change in train service (two additional round-trip daily trains within the Program Corridor) on an existing rail corridor would require maintenance of existing infrastructure. However, these maintenance activities do not require the alteration of existing drainage patterns or the addition of new impervious surfaces. Therefore, no impacts are anticipated to occur at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – No Impact. Operational activities would consist of ongoing maintenance of existing infrastructure and would not require the alteration of existing drainage patterns or the addition of new impervious surfaces once construction is complete. Therefore, no impacts are anticipated to occur at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Would the Program substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows?		
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 related to impeding or redirecting flood flows are dependent on the location of rail infrastructure improvements and station facilities. The construction of these improvements and facilities has the potential to alter the existing drainage patterns of the site and flood flows within an area through the addition of new impervious surfaces and structures. A detailed analysis of changes to these drainage patterns and flood flow cannot be considered at the Tier 1/Program EIS/EIR evaluation level as the locations of infrastructure and station facilities is unknown. The Tier 2/Project-level analysis would identify and evaluate impacts associated with site-specific drainage pattern and flood flow changes.	HWQ-1 LU-3	Less than Significant. HWQ-1 and LU-3 would minimize, reduce, or avoid potential impacts from changes in drainage patterns and flood flows by requiring compliance with applicable regulations and additional analysis during the Tier 2/Project-level analysis.
Operation		
Western Section – No Impact. The change in train service (two additional round-trip daily trains within the Program Corridor) on an existing rail corridor would require maintenance of existing infrastructure. However, these maintenance activities do not require the alteration of existing drainage patterns or the addition of new impervious surfaces. Therefore, no impacts are anticipated to occur 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
<p>Eastern Section – No Impact. Operational activities would consist of ongoing maintenance of existing infrastructure and would not require the alteration of existing drainage patterns or the addition of new impervious surfaces once construction is complete. Therefore, no impacts are anticipated to occur at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	Not applicable	Not applicable
<p><i>Would the Program be located in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?</i></p>		
<p><i>Construction</i></p>		
<p>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.</p>	Not applicable	Not applicable
<p>Eastern Section – Potentially Significant. Potential impacts related to flood hazards are dependent on the location of rail infrastructure improvements and station facilities. While the Eastern Section is not within an identified area for tsunami or seiche zone risks, it crosses numerous FEMA flood zones. Construction activities associated with new rail infrastructure or station facilities may impact flood flows. The Tier 2/Project-level analysis would evaluate the potential of flood risk associated with site-specific construction activities and whether construction activities would have water quality impacts on the environment.</p>	<p>HWQ-1 HWQ-2</p>	<p>Less than Significant. HWQ-1 and HWQ-2 would minimize, reduce, or avoid potential impacts from flood flows by requiring compliance with applicable regulations. Tier 2/Project-level analysis would consider flood conveyance and potential flood risk associated with site-specific projects.</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Operation		
<p>Western Section – Less Than Significant. The change in train service (two additional round-trip daily trains within the Program Corridor) on an existing rail corridor would require maintenance of existing infrastructure. Although portions of the Western Section cross through areas identified as a potential flooding hazard area, maintenance activities within these areas are governed by existing developed maintenance plans and procedures. Maintenance activities on the existing rail corridor would not exacerbate flood risk within the area. Therefore, a less than significant impact is anticipated to occur at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	Not applicable	Not applicable
<p>Eastern Section – Less Than Significant. Operational activities would consist of ongoing maintenance of existing infrastructure. Although portions of the Eastern Section cross through areas identified as a potential flooding hazard area, maintenance activities within these areas would be governed by developed maintenance plans and procedures. Maintenance activities would not exacerbate flood risk within the area. Therefore, a less than significant impact is anticipated to occur at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	Not applicable	Not applicable
<p><i>Would the Program conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?</i></p>		
Construction		
<p>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.</p>	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Potentially Significant. Potential conflicts with a water quality control plan or sustainable groundwater management plan are dependent on where the rail infrastructure improvements and station facilities are located. Construction impacts could occur in multiple jurisdictions under different regional water quality programs. The Tier 2/Project-level analysis would identify the applicable water quality control plans and sustainable groundwater management plans and analyze conflicts that may occur during construction.</p>	<p>HWQ-2 LU-3</p>	<p>Less than Significant. HWQ-2 and LU-3 would minimize, reduce, or avoid potential conflicts with water quality control plans or sustainable groundwater management plans by requiring compliance with applicable regulations and identifying specific resources that would be impacted by Tier 2/Project-level implementation.</p>
<p>Operation</p>		
<p>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 that would result in conflicts or obstruction of a water quality control plan or groundwater management plan. Therefore, no operational impacts anticipated to occur at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3 are.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – Potentially Significant. Potential conflicts with a water quality control plan or sustainable groundwater management plan are dependent on where rail infrastructure improvements and station facilities are located. Operational impacts could occur in multiple jurisdictions under different regional water quality programs. The Tier 2/Project-level analysis would identify the applicable water quality control plans and sustainable groundwater management plans and analyze conflicts that may occur during operation.</p>	<p>HWQ-3 UTL-1 LU-3</p>	<p>Less than Significant. HWQ-3, UTL-1, and LU-3 would minimize, reduce, or avoid potential conflicts with water quality control plans or sustainable groundwater management plans by requiring compliance with applicable regulations and identifying specific resources that would be impacted by Project operation.</p>

Notes:

BMP=best management practice; EIR=environmental impact report; EIS=environmental impact statement; FEMA=Federal Emergency Management Agency

3.9.8 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 for floodplains, hydrology, and water quality.

Programmatic mitigation strategies include minimizing the length of river/stream crossings or employing appropriate stormwater management measures to minimize stormwater runoff, including the preparation of a stormwater pollution prevention plan, and compliance with regulations for local water quality permits. Proposed programmatic mitigation strategies include, but are not limited to, the following:

Mitigation Strategy HWQ-1: During Tier 2/Project-level analysis, additional floodplain hydrology documentation shall be conducted to determine if the siting of specific rail infrastructure or station facility proposed would encroach into a floodplain. If the siting of specific rail infrastructure or station facility requires encroachment into a floodplain, a floodplain assessment shall be conducted to evaluate the impacts of specific designs on water surface elevations and flood conveyance and evaluate potential flooding risk. Any project that would result in floodplain encroachment shall coordinate with the governing agency or local jurisdiction. Any additional requirements that may be needed shall be determined in coordination with the applicable regulatory agencies.

Mitigation Strategy HWQ-2: Based on the results of the Tier 2/Project-level analysis and recommendations, the construction of specific rail infrastructure or station facility proposed shall comply with the provisions of the National Pollutant Discharge Elimination System General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order Number 2009-0009-DWQ, National Pollutant Discharge Elimination System Number CAS000002) and any subsequent amendments (Order Number 2010-0014-DWQ and Order Number 2012-0006-DWQ). These provisions shall include, but are not limited to, the following:

- Construction activities shall not commence until a waste discharger identification number is received from the State Water Resources Control Board Stormwater Multiple Application and Report Tracking System.
- Identification of good housekeeping, erosion control, and sediment control best management practices shall be utilized during construction activities.
- A stormwater pollution prevention plan shall be prepared.
- A rain event action plan shall be prepared.

- A notice of termination shall be submitted to the State Water Resources Control Board within 90 days of completion of construction and stabilization of the site.

These requirements, and any additional approvals, shall be determined in coordination with the governing agencies or local jurisdiction before construction on a project commences.

Mitigation Strategy HWQ-3: Based on the results of the Tier 2/Project-level analysis and recommendations, the operation of specific rail infrastructure or station facility proposed shall comply with the provisions of the applicable Regional Water Quality Control Board Municipal Separate Storm Sewer System Program. These provisions shall include, but are not limited to, the following:

- Low impact, site design, and source control best management practices shall be identified to be utilized during operational activities.
- A water quality management plan shall be prepared that will be implemented and maintained throughout the life of a project and used by property owners, facility operators, tenants, facility employees, and maintenance contractors.

These requirements, and any additional approvals, shall be determined in coordination with the governing agencies or local jurisdiction before operation on a project commences.

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 resources 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 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 shall include, but is not limited to, the following:

- A site-specific water supply assessment shall be prepared, per Senate Bill 610 requirements.
- Water supply verification letters shall be obtained from the applicable water purveyor per Senate Bill 221 requirements.

3.10 Geology, Soils, Seismicity, and Paleontological Resources

3.10.1 Introduction

This section identifies the existing geology, soils, and seismic conditions, including paleontological and mineral resources within the Tier 1/Program EIS/EIR Study Area and provides an evaluation of the No Build Alternative and the Build Alternative Options in relation to existing geological, mineral, and paleontological conditions.

3.10.2 Regulatory Framework

In accordance 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 the prevailing geological and paleontological conditions within the Tier 1/Program EIS/EIR Study Area and evaluated the potential impacts on geology, soils, mineral resources, and paleontological resources as a result of implementing the Build Alternative Options.

Federal

Earthquake Hazards Reduction Act

In October 1977, the U.S. Congress passed the Earthquake Hazards Reduction Act to reduce the risks to life and property from future earthquakes in the U.S. through the establishment and maintenance of an effective earthquake hazards reduction program. To accomplish this goal, the Earthquake Hazards Reduction Act established the National Earthquake Hazards Reduction Program, which was further refined by the National Earthquake Hazards Reduction Program Act.

Track Safety Standards

Section 213.239, Special Inspections, of 49 CFR Part 213 requires that, in the event of fire, flood, severe storm, or other occurrence that might have damaged track structure, a special inspection shall be made of the track involved as soon as possible after the occurrence and, if possible, before the operation of any train over that track.

Paleontological Resources Preservation Act

The proposed rule (43 CFR Part 49, Paleontological Resources Preservation, November 21, 2016) would implement the Paleontological Resources Preservation Act of 2009 by providing standards for a coordinated approach to the management of paleontological resources on public lands. The rule clarifies how bureaus will manage paleontological resources to ensure they are available for current and future generations to enjoy as part of America’s national heritage.

Uniform Building Code

The Uniform Building Code (UBC) is published by the International Conference of Building Officials and forms the basis for California’s building code, as well as approximately half of the state building codes in the U.S. It has been adopted by the California Legislature to address the specific building conditions and structural requirements for California, as well as provide guidance on foundation design and structural engineering for different soil types.

State

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo (AP) Earthquake Fault Zoning Act (California PRC Sections 2621–2630) was passed into law following the destructive February 9, 1971 San Fernando earthquake, which was associated with extensive surface fault ruptures that damaged numerous structures. The act provides a mechanism for reducing losses from surface fault rupture on a statewide basis. The intent of the act is to ensure public safety by prohibiting the siting of most structures for human occupancy across traces of active faults that constitute a potential hazard to structures from surface faulting or fault creep.

California Building Code

California provides minimum standards for building design through the (Title 24). The 2016 California Building Code became effective January 1, 2017. With the shift from seismic zones to seismic design, the California Building Code philosophy has shifted from life safety design to collapse prevention, meaning that structures are designed for prevention of collapse for the maximum level of ground shaking that could reasonably be expected to occur at a site.

California Surface Mining and Reclamation Act of 1975

The CGS, formerly the California Division of Mines and Geology, classifies the regional significance of mineral resources in accordance with the Surface Mining and Reclamation Act of 1975 (California PRC Sections 2710-2796) and assists CGS in the designation of lands containing significant aggregate resources. Surface Mining and Reclamation Act regulates surface mining operations to ensure that adverse environmental impacts are minimized, and mined lands are reclaimed to a usable condition. Surface Mining and Reclamation Act also encourages the production, conservation, and protection of California's mineral resources.

California Public Resource Code

The California PRC includes provisions for the handling of paleontological resources. Specifically, PRC 5097.5 provides for the protection of paleontological resources and prohibits the removal, destruction, injury, or defacement of paleontological features on any lands under the jurisdiction of state or local authorities. PRC 30244 requires reasonable mitigation for impacts on paleontological resources that occur as a result of development.

Seismic Hazards Mapping Act

The California Department of Conservation provides guidance to the Seismic Hazards Mapping Act, which aims to reduce the threat of seismic hazard to public health and safety by identifying and mitigating seismic hazards. State, county, and city agencies are directed to utilize such maps in land use and permitting processes. The act also requires geotechnical investigations specific to the site be conducted before permitting occurs on sites within seismic hazard zones.

Regional

Goals and policies related to geology, soils, seismicity, paleontological, and mineral resources applicable to the Program were identified in the Los Angeles, Orange, San Bernardino, and Riverside Counties' general plans.

Los Angeles County 2035 General Plan

The Safety Element of the *Los Angeles County 2035 General Plan* (County of Los Angeles 2015) provides goals, objectives, policies, and programs related to hazards mitigation, emergency response, fire hazards, seismic/geotechnical hazards, and disaster recovery. The Safety Element identifies policies to reduce the potential risk of death, injuries, and economic damage resulting from natural and man-made hazards. The general plan prohibits new projects, as defined by the AP Act and Seismic Hazards Mapping Acts, until a comprehensive geotechnical study has been completed.

The Conservation and Natural Resources Element of the *Los Angeles County 2035 General Plan* provides goals, objectives, policies, and programs related to conservation of paleontological and mineral resources. Mineral resource policies include the protection of mineral resource zones (MRZ) from development and incompatible adjacent land uses and the management of identified mineral resources that allows for access, development, and conservation of mineral resources. Paleontological resource policies include the proper notification, mitigation, and recovery process for development on or near paleontological resources.

Orange County General Plan

The Safety Element of the *Orange County General Plan* (Orange County 2005) provides goals, objectives, and policies related to hazards that primarily impact persons and property in the unincorporated areas of Orange County and includes information on seismic and geologic hazards, including landslides, land subsidence, erosion, and soil characteristics.

The Resources Element of the *Orange County General Plan* provides goals, objectives, policies, and programs related to conservation of paleontological and mineral resources. Mineral resource policies include the protection of all mineral lands consistent with sound resource management practices and to reduce dependence on imported mineral resources for existing and future needs. Paleontological resource policies include identifying paleontological resource through literature, records research, and surface surveys and the proper notification, mitigation, and recovery process for paleontological resources for cultural, scientific, and education needs.

County of Riverside General Plan

The Safety Element of the *County of Riverside General Plan* (County of Riverside 2003) serves as the framework by which safety considerations are introduced into the land use planning process and identifies existing hazards and policies to reduce hazards for development.

The Open Space Element of the *County of Riverside General Plan* provides goals, objectives, policies, and programs related to conservation of paleontological and mineral resources. Mineral resource policies include the restriction of incompatible land uses within areas of existing or potential surface mining areas. The Open Space Element of the *County of Riverside General Plan* recognizes the importance of paleontological resources with the development of policies to ensure these resources are considered in project planning. These policies include the preparation of paleontological resource impact mitigation program and the proper documentation, curation, and mitigation of impacts on paleontological resources.

County of San Bernardino General Plan

The Safety Element of the *County of San Bernardino General Plan* (County of San Bernardino 2014) provides information on geologic hazards, seismic activity, landslides and mudslides, ground subsidence, volcanic activity, and wind/erosion and identifies goals and policies to reduce the potential risk of death, injuries, property damage, and economic and social dislocation resulting from fires, floods, earthquakes, landslides, and other hazards.

The Natural Resources Element of the *County of San Bernardino General Plan* provides goals, objectives, policies, and programs related to conservation of paleontological and mineral resources. Mineral resource policies include the prioritization of MRZ-2 lands by prohibiting or discouraging development of land that would preclude future development of mining facilities. Paleontological resource policies include the avoidance of paleontological resources whenever feasible and salvage and preservation of resources if avoidance is not possible.

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 locations are known.

3.10.3 Methods for Evaluating Environmental Effects

The methodology for the geological and paleontological evaluation consists of a service-level qualitative, and—where possible—quantitative, analysis that compares relative effects on geology, soils, mineral resources, and paleontological resources as a result of implementing each of the Build Alternative Options. A detailed evaluation that will identify Project-specific geotechnical engineering and permitting requirements will be completed for the Tier 2/Project-level analysis.

Geologic resources include subsurface geologic conditions and soil resources that can provide value or are useful to society. Geologic hazards associated with these and other geologic resources could pose potential danger to the built and natural environment. Geologic hazards include soils with steep slopes and high landslide susceptibility and seismic conditions.

The geologic setting is described in terms of the underlying geologic conditions and soil type. Due to the regional nature of the physical geological environment, seismic hazards (faults, ground shaking, liquefaction, and slope stability) in the Tier 1/Program EIS/EIR Study Area, as defined below, are described on a countywide basis. The likelihood for expansive soils, corrosive soils, and soil erosion is also described. Data, based on available GIS data, is tabulated by county.

To assess potential effects related to geology, soils, and mineral resources, aerial mapping was used to obtain information for the Tier 1/Program EIS/EIR Study Area. Active faults, MRZs, ground shaking, liquefaction, slope stability, and soil type were evaluated in the analysis.

Paleontological research for the Tier 1/Program EIS/EIR includes a geologic map review, paleontological sensitivity map review, soil typology review, and search of readily available literature for the Eastern Section under the Build Alternative Options. The results of the research were used to complete a paleontological sensitivity analysis, along with a qualitative assessment of potential effects on paleontological resources from implementation of the Eastern Section under Build Alternative Options 1, 2, and 3. The Western Section utilizes existing rail infrastructure, and no additional track improvements would be required to accommodate the proposed service; therefore, no ground disturbance would occur with implementation of the Build Alternative Options. As such, record searches and archival research were only conducted for the Eastern Section because ground disturbance would be required for the infrastructure improvements proposed for this section.

Tier 1/Program EIS/EIR Study Area

This service-level evaluation is limited to a desktop analysis of the data sources described in Section 3.10.3. The Tier 1/Program EIS/EIR Study Area was combined with GIS overlays to identify areas where seismic and geologic hazards may occur (e.g., ground shaking, liquefaction, slope stability and the likelihood for expansive soils, corrosive soils, and soil erosion) and where potential environmental resources (e.g., paleontological or mineral resources) could be affected by the Program. These potential areas 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, of this Tier 1/Program EIS/EIR.

Data Sources

Online GIS data sources available from USGS, CGS, and a variety of other sources were used to identify areas containing potential seismic/geologic hazards, paleontological resources, and mineral resources within the Tier 1/Program EIS/EIR Study Area. Specifically, the following resources were reviewed:

- **Earthquake Hazards Program:** Stores information reported by USGS on identified active faults and landslide susceptibility, data on the dates of seismic activity for active faults, and maps of soils that have physical properties or topographic position susceptible to landslides

- **Earthquakes and Faults Program:** Stores information reported by CGS related to ground motion earthquake records, distribution of historic earthquakes, and maps showing potential for ground shaking, fault rupture, liquefaction, and seismically induced landslides in California.
- **Mineral Resource Mapping:** Stores information generated by CGS that identify mineral resources zones with the potential for production of geologic resources, such as metals, minerals, and construction aggregate important to the state's economy
- **Mines Online Interactive Map:** A California Department of Conservation (Division of Mine Reclamation) database that provides information such as mine name, mine status, commodity sold, location, and other mine-specific data

Related Resources

There are no related resources that would contribute to the assessment of Tier 1/Program EIS/EIR effects on geology, soils, mineral resources, and paleontological resources.

3.10.4 Affected Environment

Southern California straddles the Pacific tectonic plate and the North American tectonic plate. The slow movements of these plates over time has created a complex and diverse geological setting unique to this region. Evidence of historic seismic activity is present in the numerous mountain ranges, valleys, canyons, and other geological features in the region. Present seismic activity is apparent in the numerous faults throughout the region, earthquakes, liquefaction, and landslides.

The Program Corridor is approximately 144 miles long and traverses a diverse geological area from its western terminus in the Los Angeles Basin to its eastern terminus in the Coachella Valley. The majority of the Program Corridor from the Los Angeles Basin to San Gorgonio Pass is located at the boundary of the Transverse Ranges Geomorphic Province and the northern Peninsular Ranges Geomorphic Province. The topography crossed by the Program Corridor ranges from relatively flat, urban landscapes in the Western Section to hilly canyons in the central portion, and flat, low desert habitat in the Eastern Section. Elevations within the Program Corridor range from 300 feet above mean sea level at the western terminus in Los Angeles up to 600 feet in Corona, 1,000 feet in Colton, and 2,600 feet in Beaumont (highest elevation), and down to 75 feet below mean sea level at the eastern terminus in Coachella (lowest elevation). From San Gorgonio Pass to the Coachella Valley, the Tier 1/Program EIS/EIR Study Area lies at the boundary of the Peninsular Ranges Geomorphic Province and the Colorado Desert Geomorphic Province.

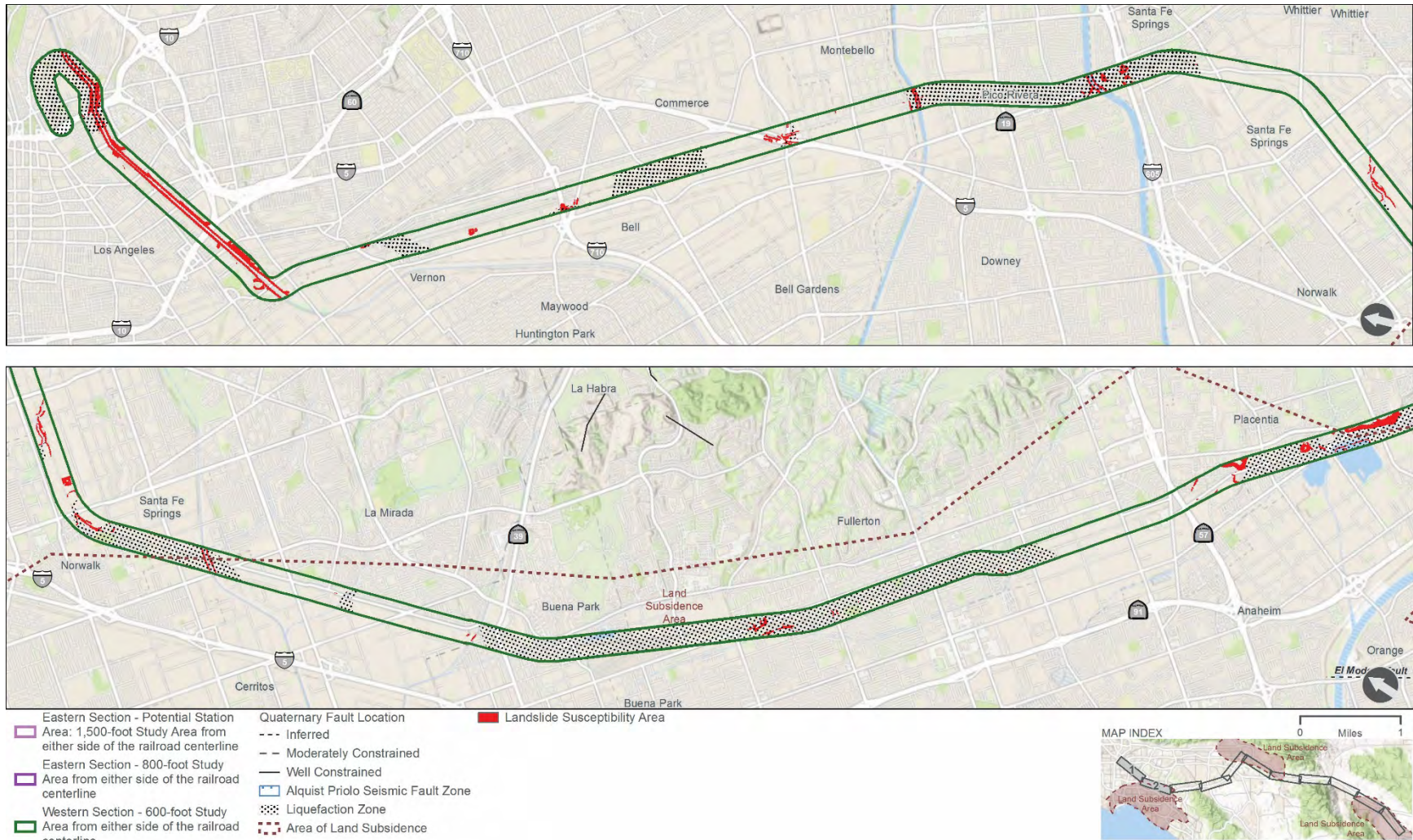
The majority of the Tier 1/Program EIS/EIR Study Area is underlain by marine and non-marine sedimentary rock of the Holocene Age and Pleistocene Age consisting of unconsolidated and semi consolidated alluvium, lake, playa, and terrace deposits.

Earthquake Faults and Alquist-Priolo Fault Zones

The Tier 1/Program EIS/EIR Study Area is located within an active seismic region and is expected to experience ground shaking from an earthquake occurring along several major active or potentially active faults in Southern California. The probability that the Tier 1/Program EIS/EIR Study Area would be subject to strong seismic shaking is considered moderate to high, due to the proximity of known active faults in the region. The USGS 1-year probabilistic seismic hazard forecast for induced and natural earthquakes indicates that Los Angeles County, Orange County, southwest San Bernardino County, and the western half of Riverside County have a 2 to 5 percent chance of experiencing ground shaking resulting in minor damage (USGS 2020). As shown on Figure 3.10-1, the Tier 1/Program EIS/EIR Study Area traverses multiple earthquake faults and AP fault zones.

Figure 3.10-1. Potential Seismic and Geologic Hazard Zones within the Tier 1/Program EIS/EIR Study Area

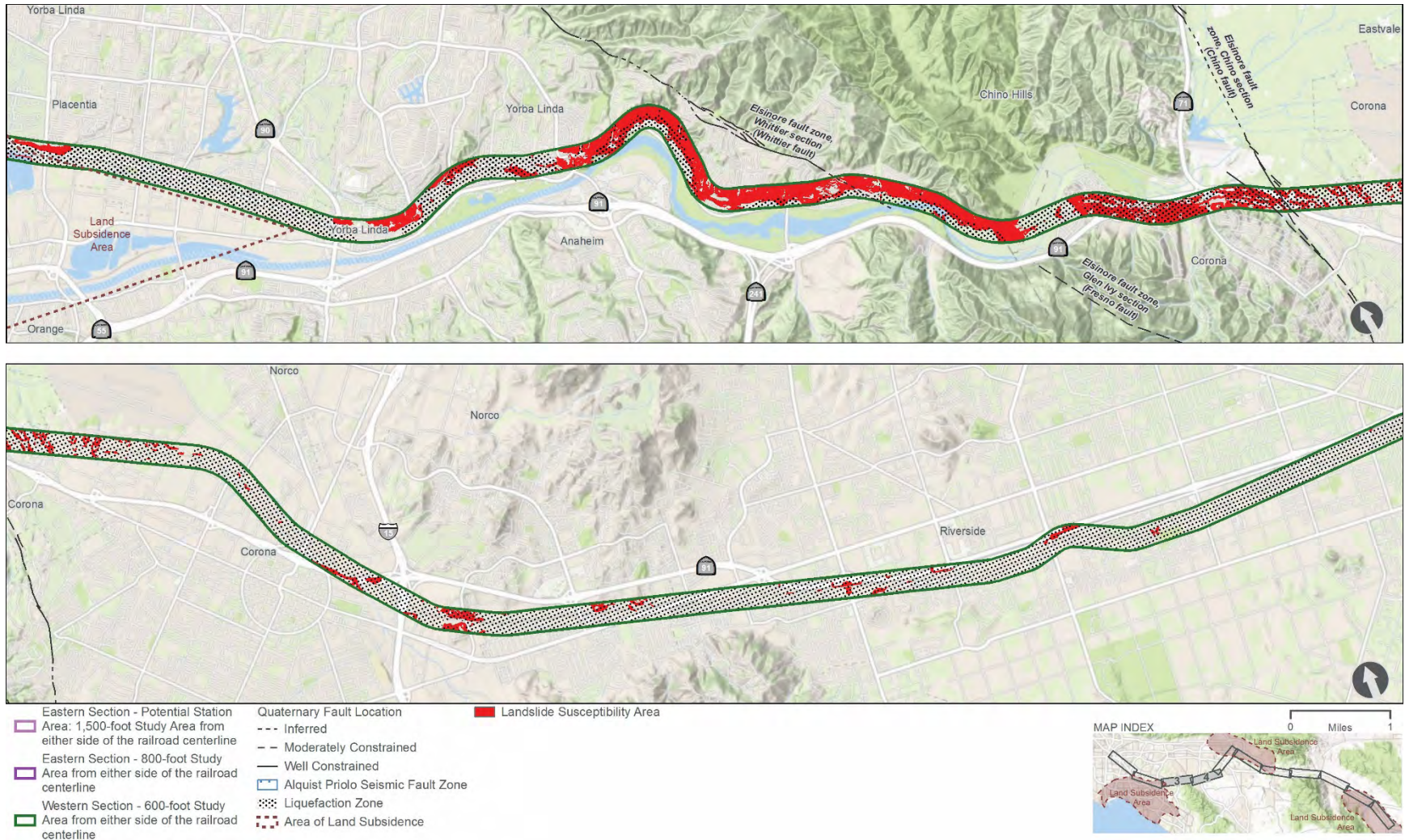
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Figure 3.10-1. Potential Seismic and Geologic Hazard Zones within the Tier 1/Program EIS/EIR Study Area

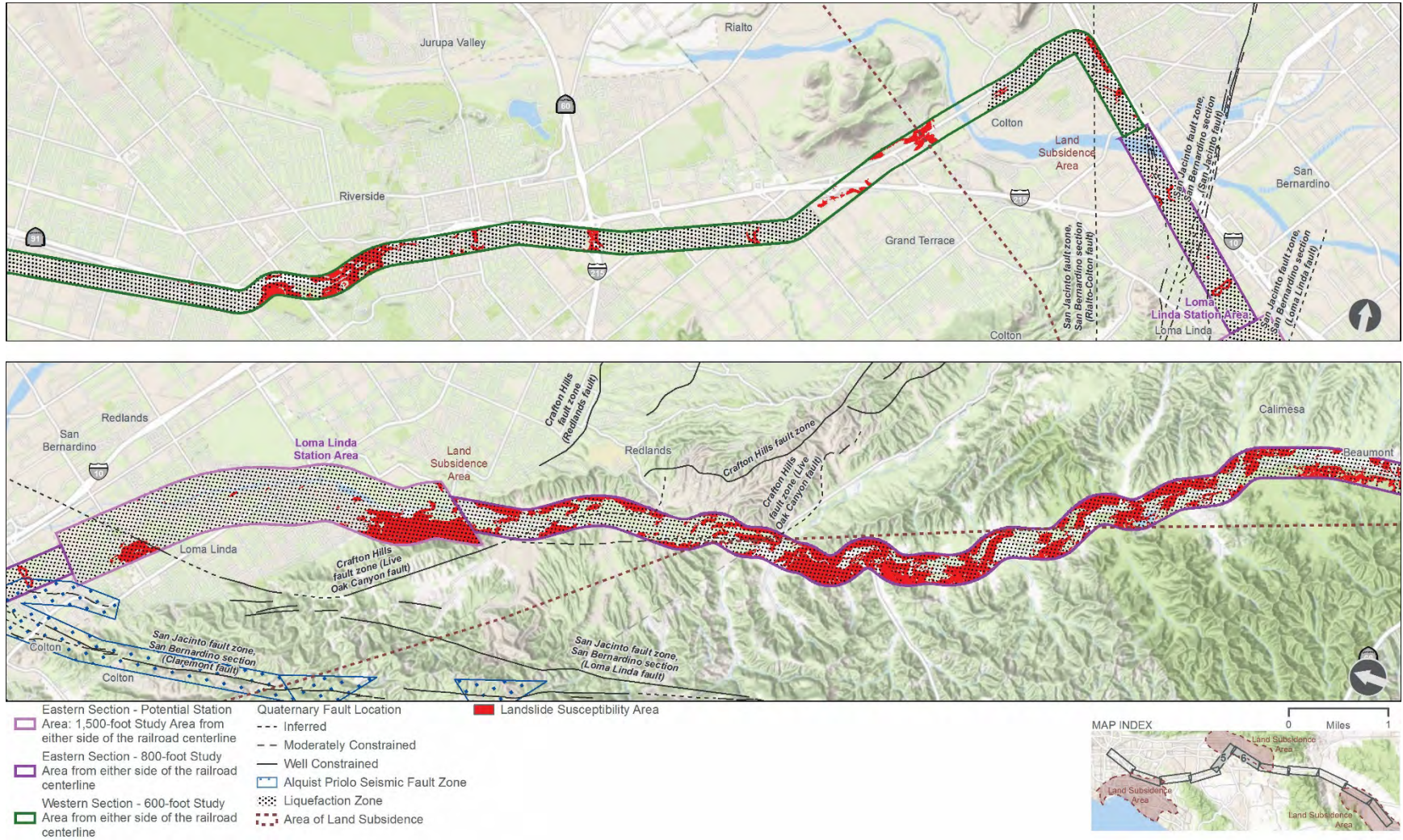
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Figure 3.10-1. Potential Seismic and Geologic Hazard Zones within the Tier 1/Program EIS/EIR Study Area

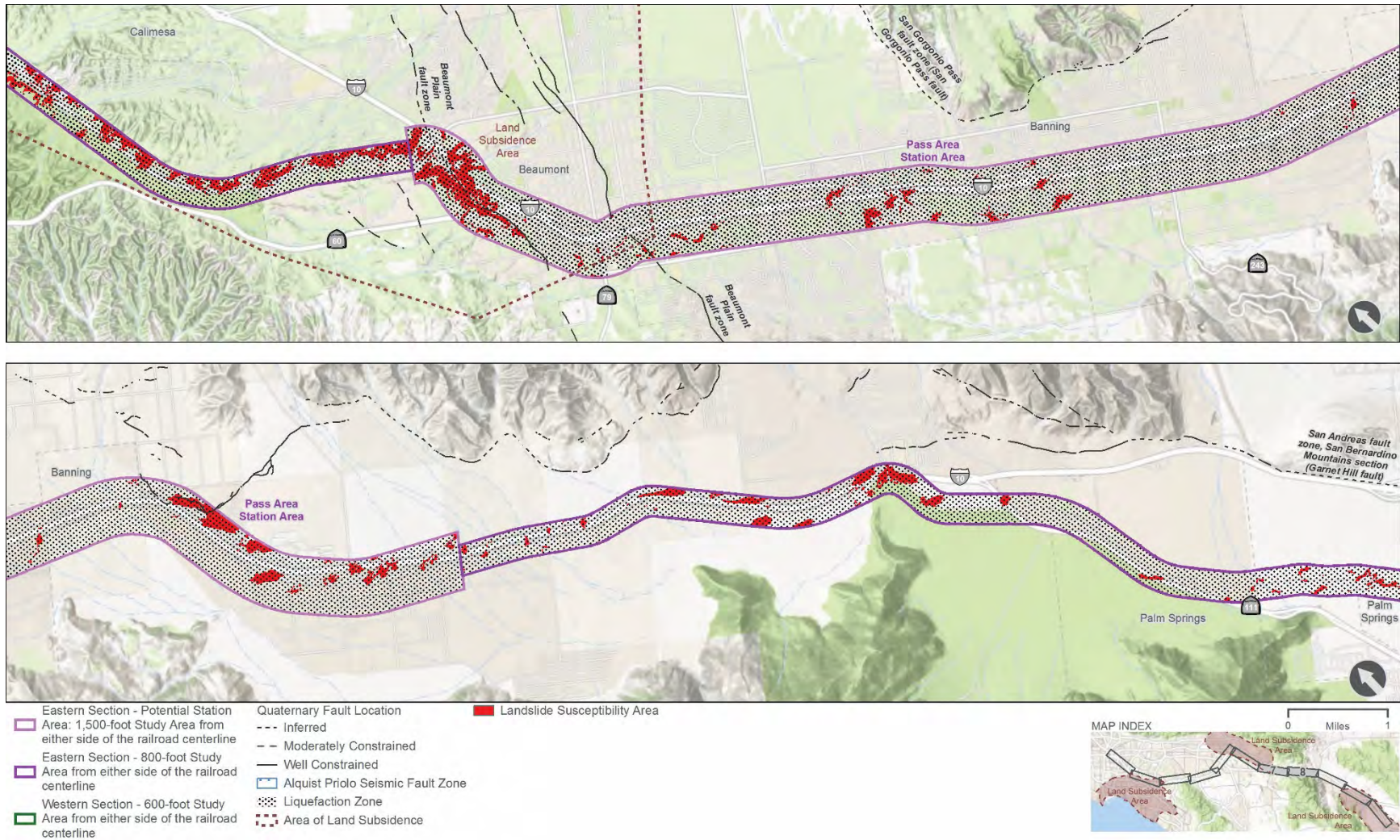
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Figure 3.10-1. Potential Seismic and Geologic Hazard Zones within the Tier 1/Program EIS/EIR Study Area

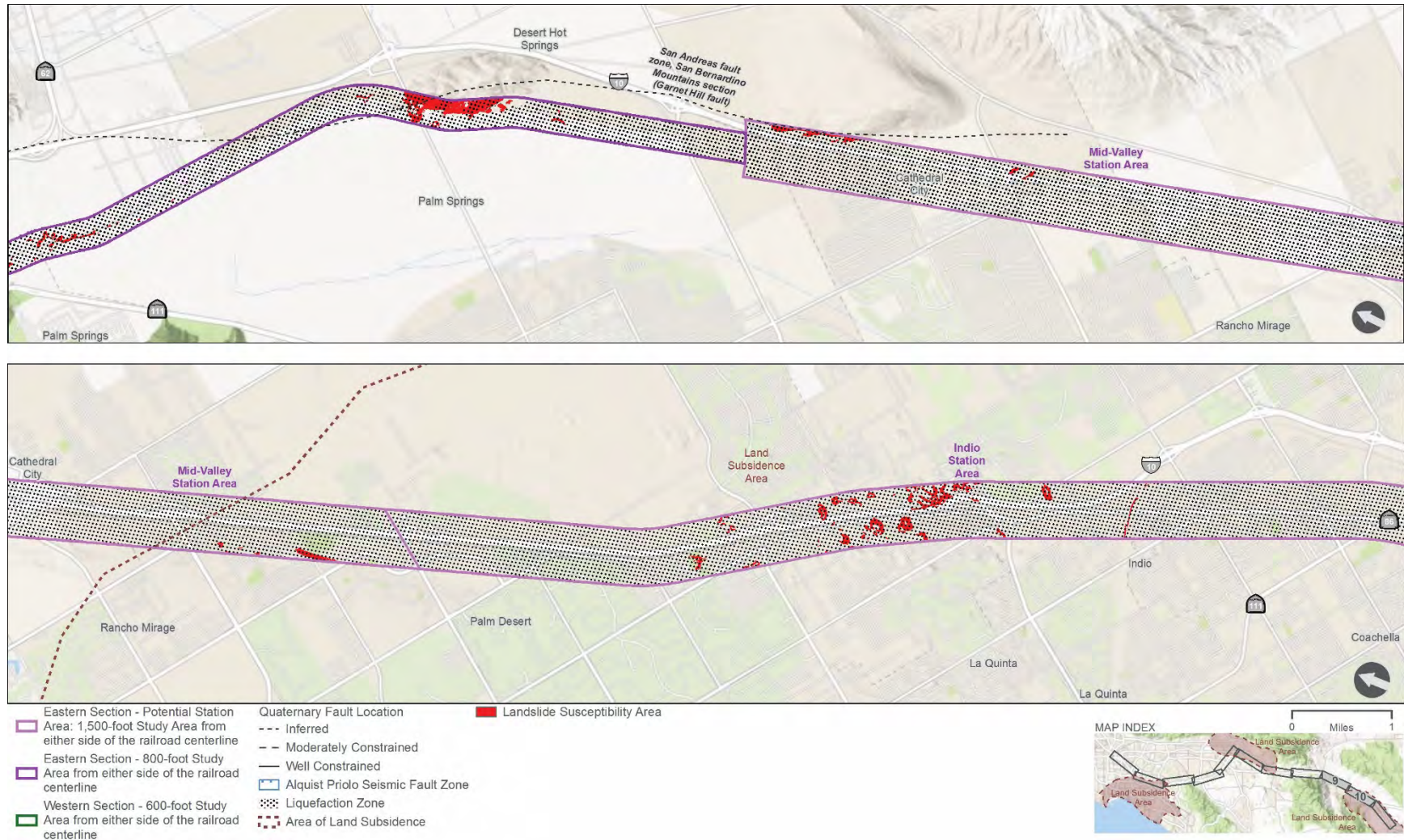
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Figure 3.10-1. Potential Seismic and Geologic Hazard Zones within the Tier 1/Program EIS/EIR Study Area

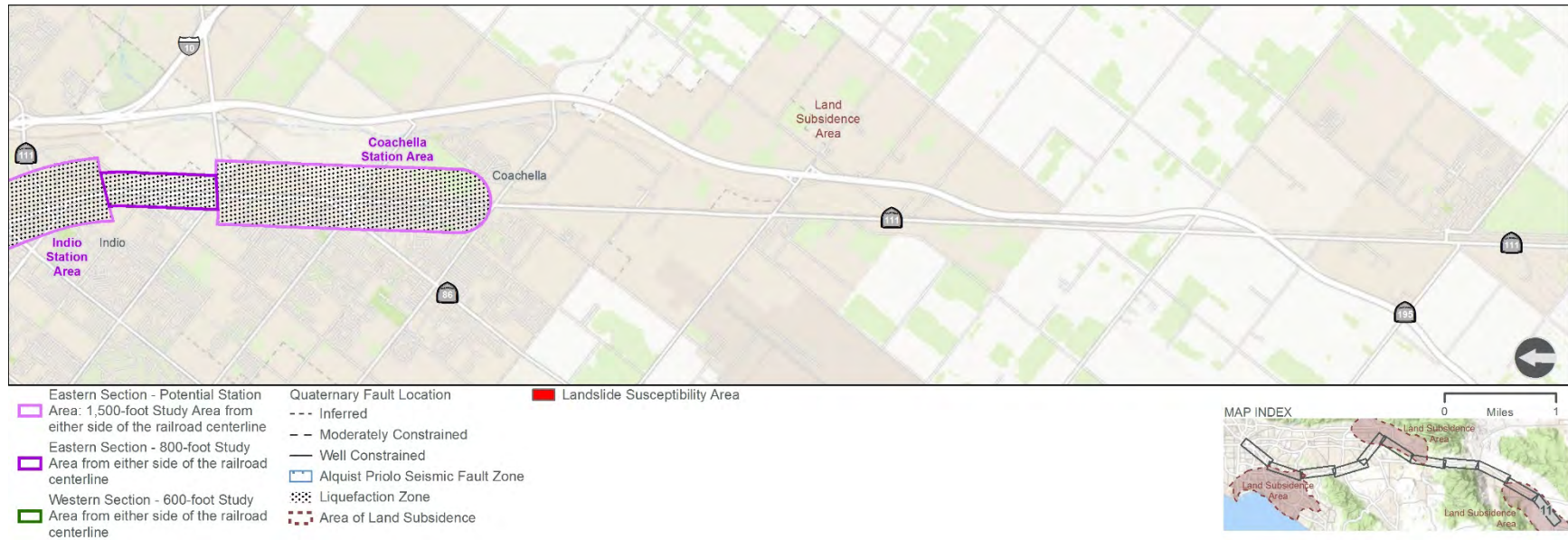
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Figure 3.10-1. Potential Seismic and Geologic Hazard Zones within the Tier 1/Program EIS/EIR Study Area

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Build Alternative Option 1 (Coachella Terminus)

There are portions of the Build Alternative Option 1 that cross an earthquake fault or are mapped as being within an AP fault zone. Table 3.10-1 provides a summary of earthquake faults and AP fault zones located within Build Alternative Option 1.

Table 3.10-1. Summary of Earthquake Faults and Zones (Build Alternative Options 1, 2, and 3)

Earthquake Fault	Earthquake Fault Zone	Earthquake Fault Zone Section	County
Whittier Fault	Elsinore Fault Zone	Whittier Section	Orange
Chino Fault	Elsinore Fault Zone	Chino Section	Riverside
Rialto-Colton Fault	San Jacinto Fault Zone	San Bernardino Section	San Bernardino, Riverside
San Jacinto Fault	San Jacinto Fault Zone	San Bernardino Section	San Bernardino
Loma Linda Fault	San Jacinto Fault Zone	San Bernardino Section	San Bernardino
Claremont Fault	San Jacinto Fault Zone	San Bernardino Section	San Bernardino
Live Oak Canyon Fault	Crafton Hills Fault Zone	—	San Bernardino, Riverside
—	Beaumont Plain Fault Zone	—	Riverside
Garnet Hill Fault	San Andreas Fault Zone	San Bernardino Mountains Section	Riverside

Source: USGS 2020

Build Alternative Option 2 (Indio Terminus)

Identified earthquake faults and AP fault zones located within Build Alternative Option 2 (Table 3.10-1) are the same as Build Alternative Option 1.

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

Identified earthquake faults and AP fault zones located within Build Alternative Option 3 (Table 3.10-1) are the same as Build Alternative Option 1.

Seismic/Geologic Hazard Zones

Seismic or geologic hazards are natural seismic or geologic events that can endanger human lives and threaten property. Potential seismic or geologic hazards include liquefaction/seismically induced settlement, slope instability (landslide susceptibility), collapsible and expansive soils, corrosive soils, and subsidence. As shown on Figure 3.10-1, the Tier 1/Program EIS/EIR Study Area contains areas where seismic or geologic hazards zones may be present. Table 3.10-2 provides background information for these seismic or geologic hazards.

Table 3.10-2. Seismic and Geologic Hazards Definitions

Seismic/Geologic Hazard	Definition	Potential Occurrence
Liquefaction	Liquefaction is the loss of soil strength or stiffness due to a buildup of pore-water pressure during ground shaking. Liquefaction is associated primarily with loose (low-density), saturated, fine- to medium-grained, cohesionless soils. Effects of liquefaction can include sand boils, excessive displacements, bearing capacity failures, and lateral spreading.	Liquefaction can occur primarily within loose to moderately dense sandy soil due to reduction in volume during and shortly after an earthquake event.
Seismically induced settlement	Seismically induced settlement consists of dry dynamic settlement (above groundwater) and liquefaction-induced settlement (below groundwater).	This settlement occurs primarily within loose to moderately dense sandy soil due to reduction in volume during and shortly after an earthquake event.
Slope instability (landslides)	Slope instability is related to slope gradient, soil or rock type, consolidation or cementation of the rock, and the amount of fracturing of the rock. Generally, slopes of 10 degrees or more are subject to seismically induced land sliding.	Land sliding can be seismically induced, resulting from extended periods of ground shaking and high ground accelerations. Improper grading and excessive rainfall or irrigation can also increase the susceptibility of land sliding.

Seismic/Geologic Hazard	Definition	Potential Occurrence
Collapsible soils	Collapsible soils are soils that undergo settlement upon wetting, even without the application of additional loads. Typical collapsible soils are low in plasticity and have relatively low moisture contents and densities.	Effects resulting from collapsible soils have largely been addressed by county and municipal building codes.
Expansive soils	Expansive soils are generally plastic clays that can undergo a substantial increase in volume with an increase in moisture content and a substantial decrease in volume with a decrease in moisture content. Expansive soils can cause uplift pressures that can lead to structural damage.	Effects resulting from expansive soils have largely been addressed by county and municipal building codes.
Corrosive soils	Soil corrosion occurs when chemical compounds in the soils interact with structural materials in ways that weaken the materials. Metals are attacked by a chloride solution whereas concrete is typically affected by high sulfate levels.	Effects resulting from corrosive soils have largely been addressed by county and municipal building codes.
Land subsidence	Land subsidence, or the settling of land over time, can occur for a number of reasons.	Within Southern California, land subsidence is generally caused by the lowering of the water table from groundwater withdrawals.

Build Alternative Option 1 (Coachella Terminus)

As shown on Figure 3.10-1, the majority of the Western Section and Eastern Section of Build Alternative Option 1 is within a seismically induced liquefaction zone and portions are located within landslide susceptibility zones.

For portions of the Western Section located within southeast Los Angeles County and northwest Orange County, landslide susceptibility is low due to the relatively flat topography. For portions of the Western Section located in northeast Orange County, landslide susceptibility is moderate to high due to steep slopes and landslide-prone rocks. This variation in landslide susceptibility is also present in the Eastern Section of Build Alternative Option 1. Portions of the Eastern Section cross areas with relatively flat topography, resulting in a low landslide susceptibility potential. For portions of the Eastern Section that are located within or adjacent to steep slopes (Crafton Hills, Loma Linda

Hills, San Gorgonio Pass, San Timoteo Canyon, Reche Canyon), there is a moderate to high landslide susceptible potential.

As shown on Figure 3.10-1, there are three USGS mapped areas of land subsidence within Build Alternative Option 1: Los Angeles/Santa Ana Basin subsidence area, Yucaipa Valley subsidence area, and Coachella Valley subsidence area. Portions of the Western Section of Build Alternative Option 1 that cross through Anaheim are located within the Los Angeles/Santa Ana Basin subsidence area, while portions that cross through Riverside and Colton are located within the Yucaipa Valley subsidence area. The majority of the Eastern Section of Build Alternative Option 1 is located in either the Yucaipa Valley or Coachella Valley subsidence areas. As identified by USGS, the subsidence in these areas was a result of excessive groundwater pumping in the region. Groundwater within these regions is an important water supply source with the demand for water exceeding the deliveries of imported surface water. As a result, groundwater levels have been declining as a result of increased pumping resulting in land subsidence in the region. To counteract the noted land subsidence, local and regional agencies have implemented various measures including the adjudication of certain groundwater basins (San Bernardino Basin and Beaumont Basin within the Yucaipa Valley subsidence area) and the installation off a network of continuous global positioning system stations to monitor subsidence (within the Coachella Valley subsidence area).

Build Alternative Option 2 (Indio Terminus)

Potential seismic and geologic hazard zones within Build Alternative Option 2 are the same as Build Alternative Option 1.

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

Potential seismic and geologic hazard zones within Build Alternative Option 3 are the same as Build Alternative Option 1.

Paleontological Resources

Paleontological resources—or fossils—are the remains of ancient plants and animals that can provide scientifically significant information about the history of life on Earth. Paleontological sensitivity is defined as the potential for a geologic unit to produce scientifically significant fossils. This sensitivity is determined by rock type, history of the rock unit in producing significant fossils, and fossil localities that are recorded from that unit. Paleontological sensitivity is assigned based on fossil data collected from the entire geologic unit, not just at a specific site. Paleontological sensitivity (potential) ratings (Society for Vertebrate Paleontology 2010) are summarized in Table 3.10-3.

Table 3.10-3. Paleontological Sensitivity Ratings

Sensitivity Potential	Definition
High sensitivity	Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered are considered to have a high potential for containing additional significant paleontological resources. Rocks units classified as having high potential for producing paleontological resources include, but are not limited to, sedimentary formations and some volcanoclastic formations (e.g., ashes or tephros), some low-grade metamorphic rocks that contain significant paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils (e.g., middle Holocene and older, fine-grained fluvial sandstones, argillaceous and carbonate-rich paleosols, cross-bedded point bar sandstones, fine-grained marine sandstones, etc.).
Low sensitivity	This includes rock units that have low potential for yielding significant fossils. Such rock units will be poorly represented by fossil specimens in institutional collections. Rock units with low potential typically will not require impact mitigation measures to protect fossils.
Undetermined sensitivity	Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment are considered to have undetermined potential. Further study is necessary to determine if these rock units have high or low potential to contain significant paleontological resources.

Paleontological resources are considered non-renewable resources because they are the remains of prehistoric animal and plant life.

Given the diversity of geologic units found within the Tier 1/Program EIS/EIR Study Area, the paleontology is equally diverse, and, in some areas, fossil resources are abundant. A detailed analysis of the paleontological sensitivity of each geologic formation within the Tier 1/Program EIS/EIR Study Area is beyond the scope of the Tier 1/Program-level analysis and would be the subject of Tier 2/Project-level paleontological assessments. A generalized description of regional paleontological settings has been provided below.

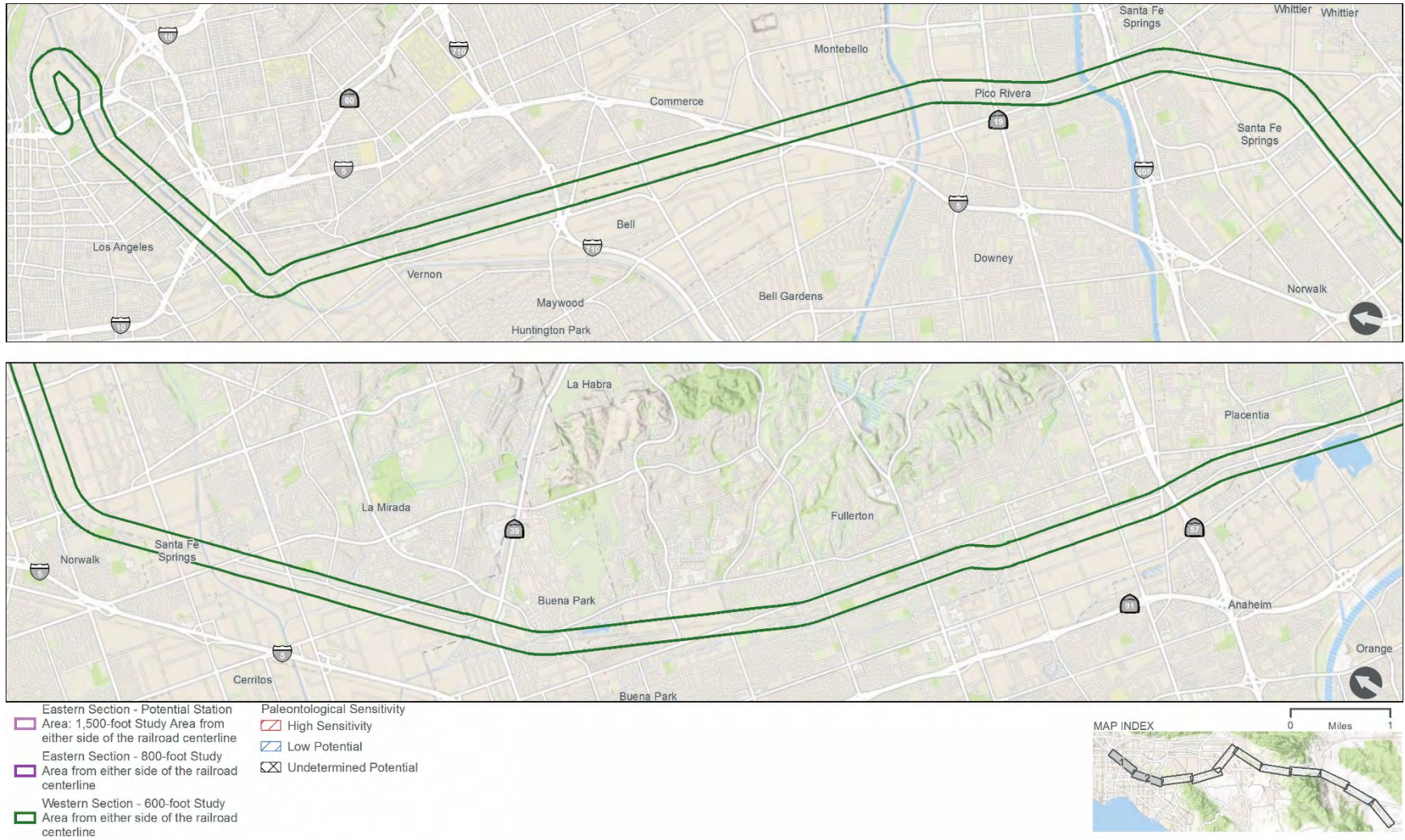
In the western portion of Riverside County, fossils occur in sediments lying on the surface of crystalline bedrock or are deposited in or between the major fault zones. The eastern desert portions of Riverside County are marked by fault block mountains that contain older fossil-bearing sediments with younger fossil-containing deposits found around dry lakes, along high stands of the Salton Sea and in terraces left by the Colorado River.

The oldest fossils in California are from the Proterozoic Age, dating to 900 million years ago. However, no fossils from the Proterozoic Age are currently known to occur in Riverside County. It is thought that in this area of Southern California, fossils earlier than the Jurassic Period may have been destroyed by the natural processes of metamorphism (geological changes in the rocks and soils). The oldest fossils found in Riverside County date to the Late Jurassic Period (approximately 150 million years ago) (Riverside County Planning Department 2015).

Figure 3.10-2 shows areas of potential paleontological sensitivity within the Tier 1/Program EIS/EIR Study Area.

Figure 3.10-2. Paleontological Sensitivity within the Tier 1/Program EIS/EIR Study Area

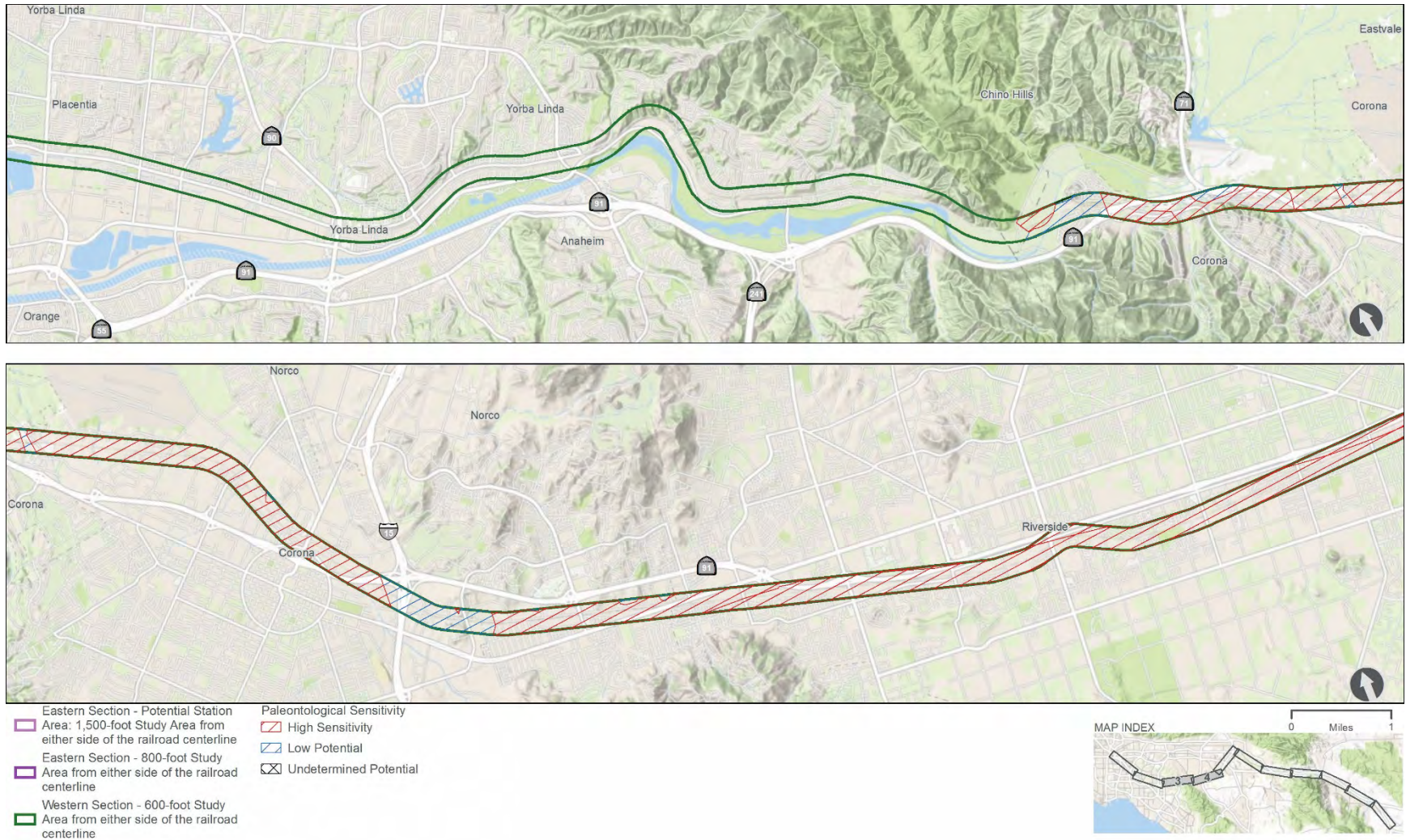
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Figure 3.10-2. Paleontological Sensitivity within the Tier 1/Program EIS/EIR Study Area

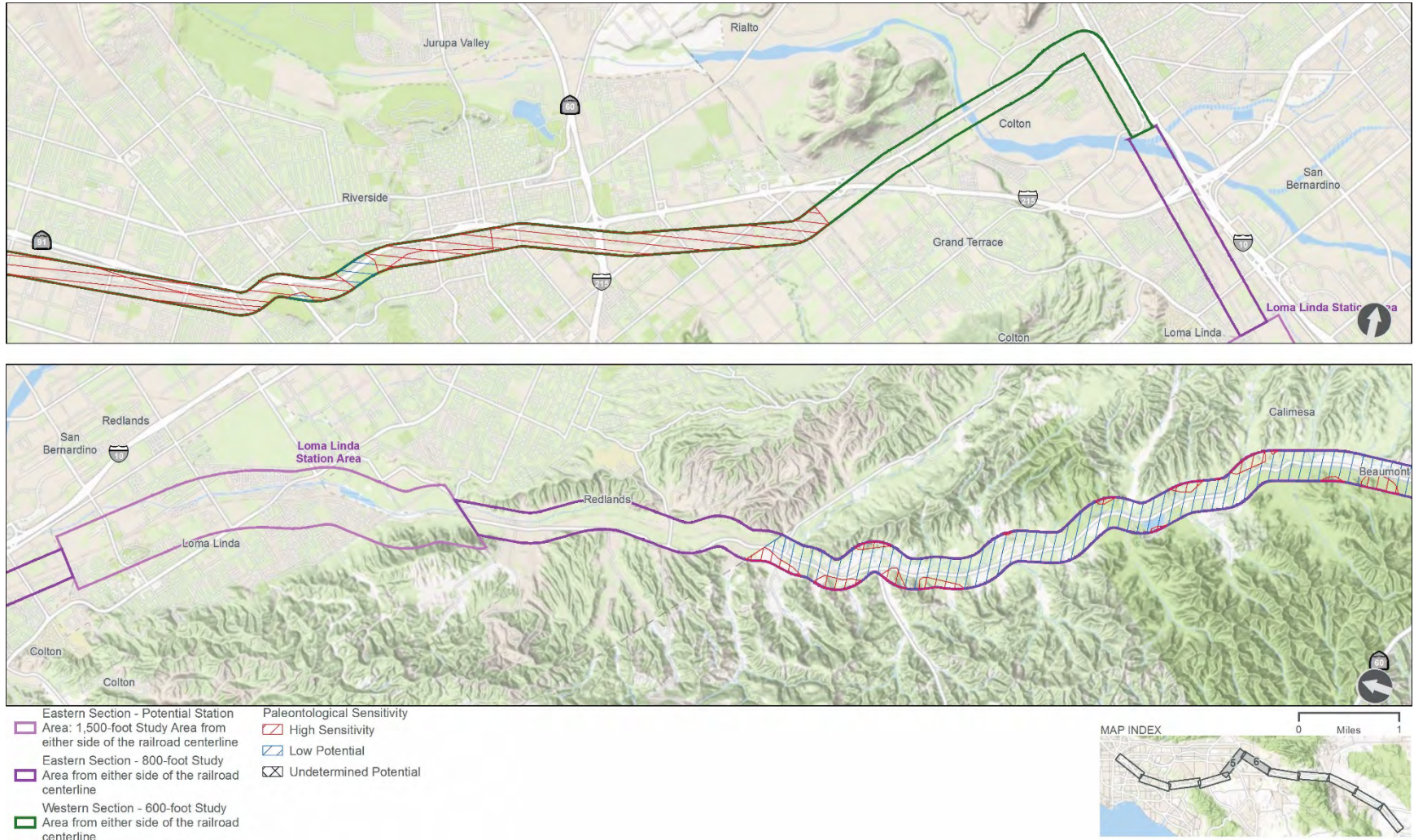
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Figure 3.10-2. Paleontological Sensitivity within the Tier 1/Program EIS/EIR Study Area

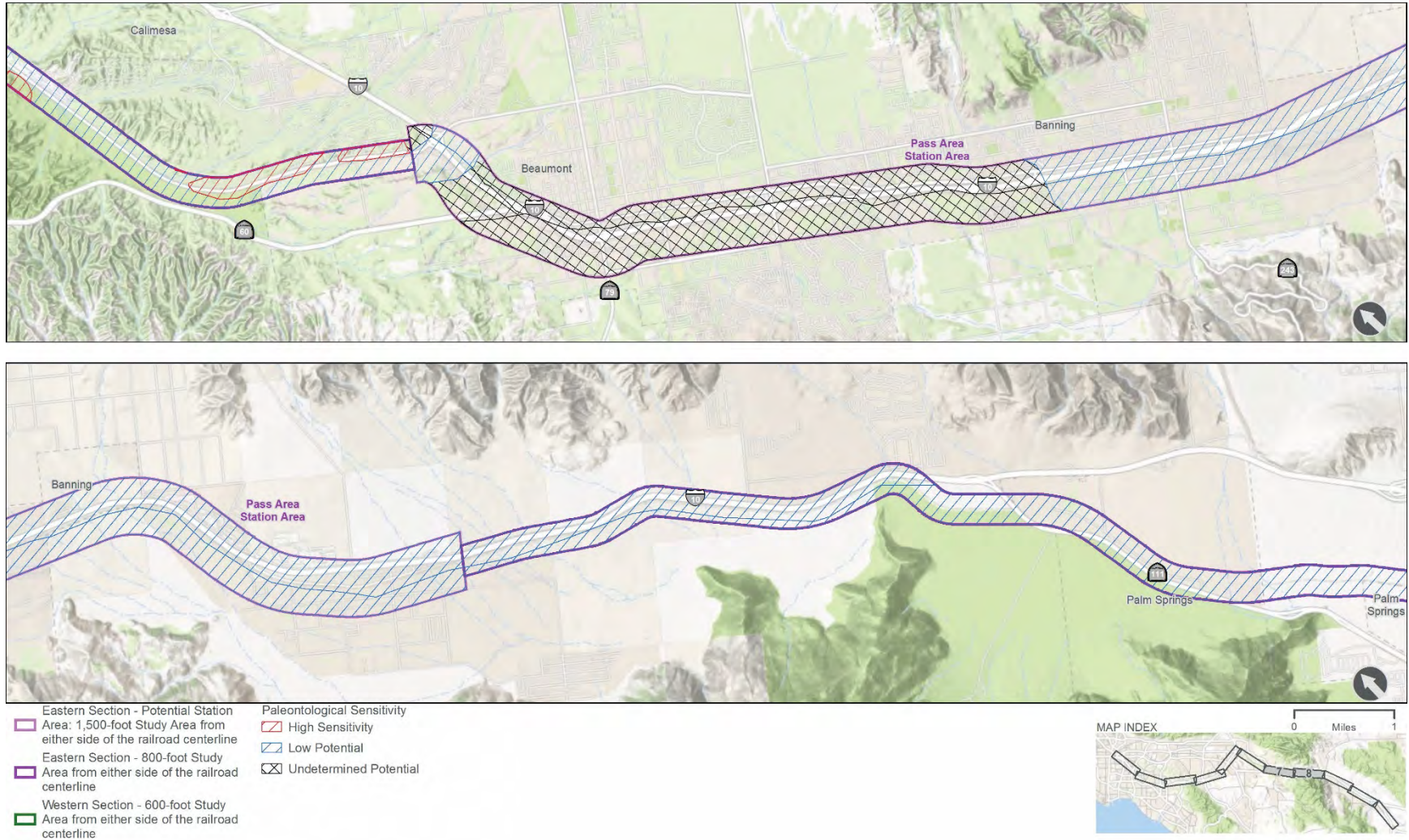
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Figure 3.10-2. Paleontological Sensitivity within the Tier 1/Program EIS/EIR Study Area

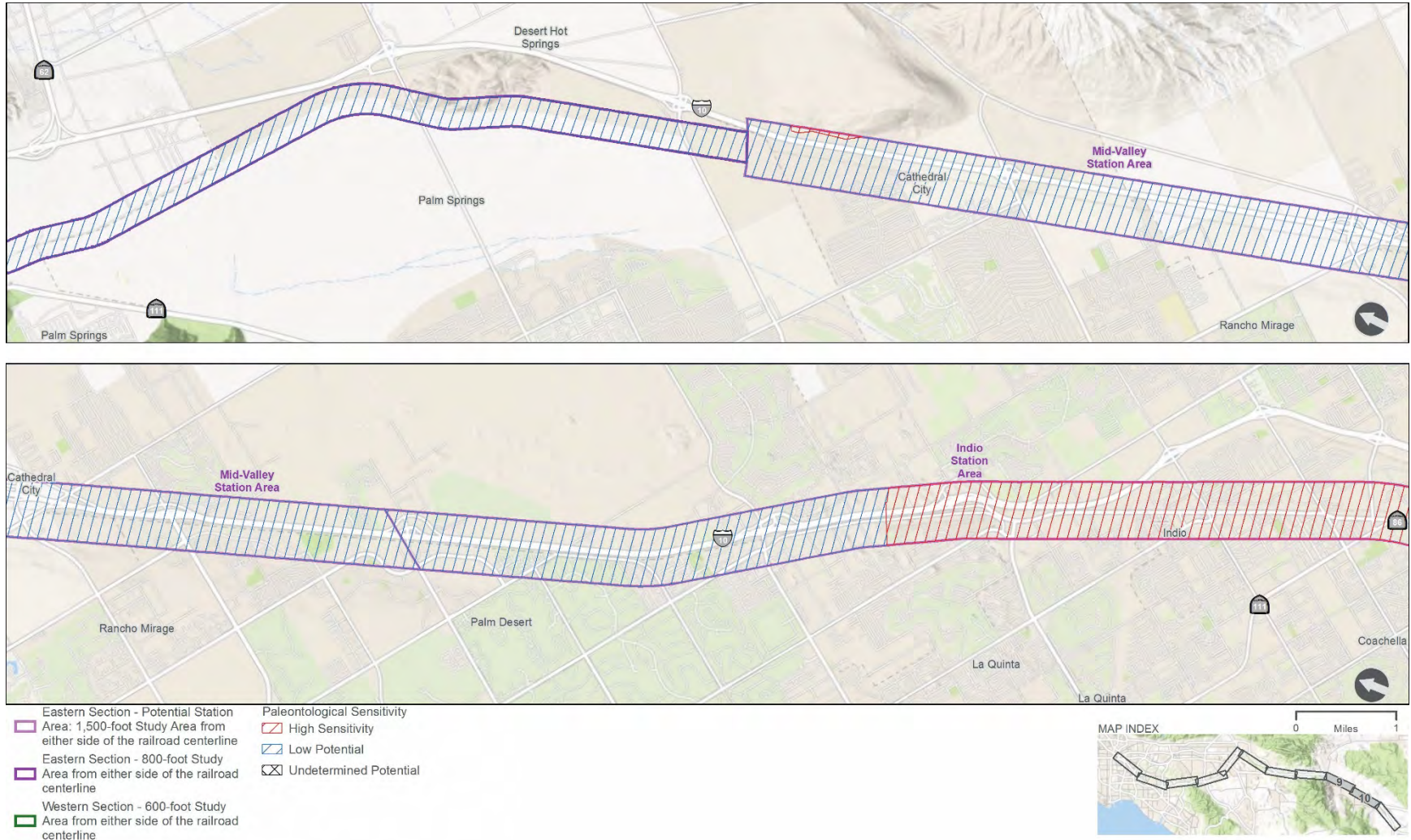
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Figure 3.10-2. Paleontological Sensitivity within the Tier 1/Program EIS/EIR Study Area

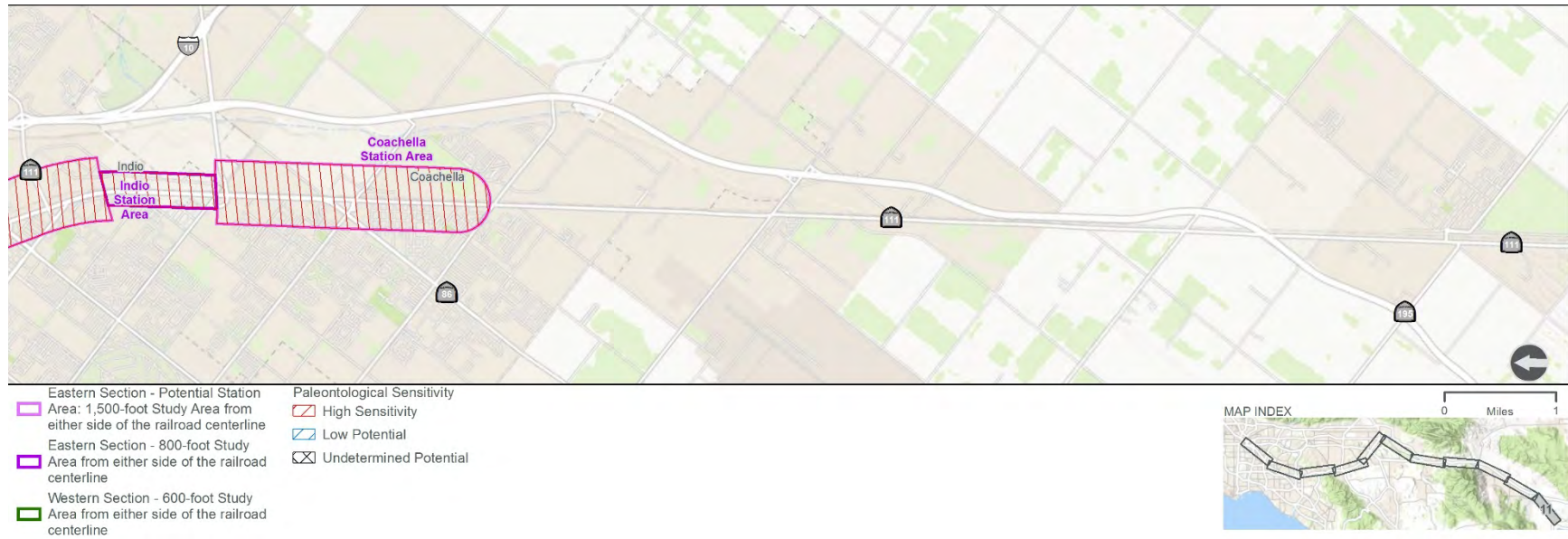
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Figure 3.10-2. Paleontological Sensitivity within the Tier 1/Program EIS/EIR Study Area

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Build Alternative Option 1 (Coachella Terminus)

For the Western Section of Build Alternative Option 1, approximately 3,146.30 acres were identified as areas mapped as having high paleontological sensitivity. For the Eastern Section of Build Alternative Option 1, approximately 1,772.31 acres were identified as areas mapped as having high paleontological sensitivity. Table 3.10-4 provides a summary of high, low, and undetermined paleontological sensitivity zones within Build Alternative Option 1.

Table 3.10-4. Summary of Paleontological Sensitivity Zones (Build Alternative Option 1)

Paleontological Sensitivity Zone	Area of Zone within Western Section (acres)	Area of Zone within Eastern Section (acres)	Total Area of Zone (acres)
High	3,146.30	1,772.31	4,918.61
Low	364.80	13,404.10	13,768.90
Undetermined	2.49	2,279.15	2,281.64

Build Alternative Option 2 (Indio Terminus)

Table 3.10-5 provides a summary of paleontological resource zones within Build Alternative Option 2. There are fewer acres of paleontological resource zones within Build Alternative Option 2 because of the shorter route alignment and reduced station options.

Table 3.10-5. Summary of Paleontological Sensitivity Zones (Build Alternative Options 2 and 3)

Paleontological Sensitivity Zone	Area of Zone within Western Section (acres)	Area of Zone within Eastern Section (acres)	Total Area of Zone (acres)
High	3,146.30	706.77	3,853.07
Low	364.80	13,404.10	13,768.90
Undetermined	2.49	2,279.15	2,281.64

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

Potential paleontological sensitivity areas within Build Alternative Option 3 are the same as Build Alternative Option 2.

Mineral Resources

Minerals are defined as any naturally occurring chemical elements or compounds, formed from inorganic processes and organic substances. Mineable minerals or an ore deposit is defined as a deposit of ore or mineral having a value materially in excess of the cost of developing, mining, and processing the mineral and reclaiming the project area. The conservation, extraction, and processing of mineral resources are an integral part of development and economy within Southern California.

The CGS provides information about California’s non-fuel mineral resources and classifies lands throughout the state that contain regionally significant mineral resources, as mandated by the Surface Mining and Reclamation Act. Non-fuel mineral resources include metals such as gold, silver, iron, and copper; industrial metals such as boron compounds, rare-earth elements, clays, limestone, gypsum, salt, and dimension stone; and construction aggregate such as sand, gravel, and crushed stone. Development generally results in a demand for minerals, especially construction aggregate.

The classification of these mineral resources is a joint effort of the state and the local governments and is based on geologic factors and requires that the State Geologist classify the mineral resources area as one of the four MRZs, as summarized in Table 3.10-6.

Table 3.10-6. Mineral Resource Zone Ratings

MRZ	Definition
MRZ-1	Areas where adequate information indicates that no significant mineral deposits are present or likely to be present
MRZ-2	Areas where adequate information indicates that significant mineral deposits are present or a high likelihood exists for their presence Subcategory MRZ-2a indicates measured/indicated mineral resource reserves, while Subcategory MRZ-2b indicates inferred mineral resources
MRZ-3	Areas where the significance of mineral deposits cannot be determined from available data
MRZ-4	Areas where available information is inadequate for assignment to any other MRZ designation

Source: USGS 2020

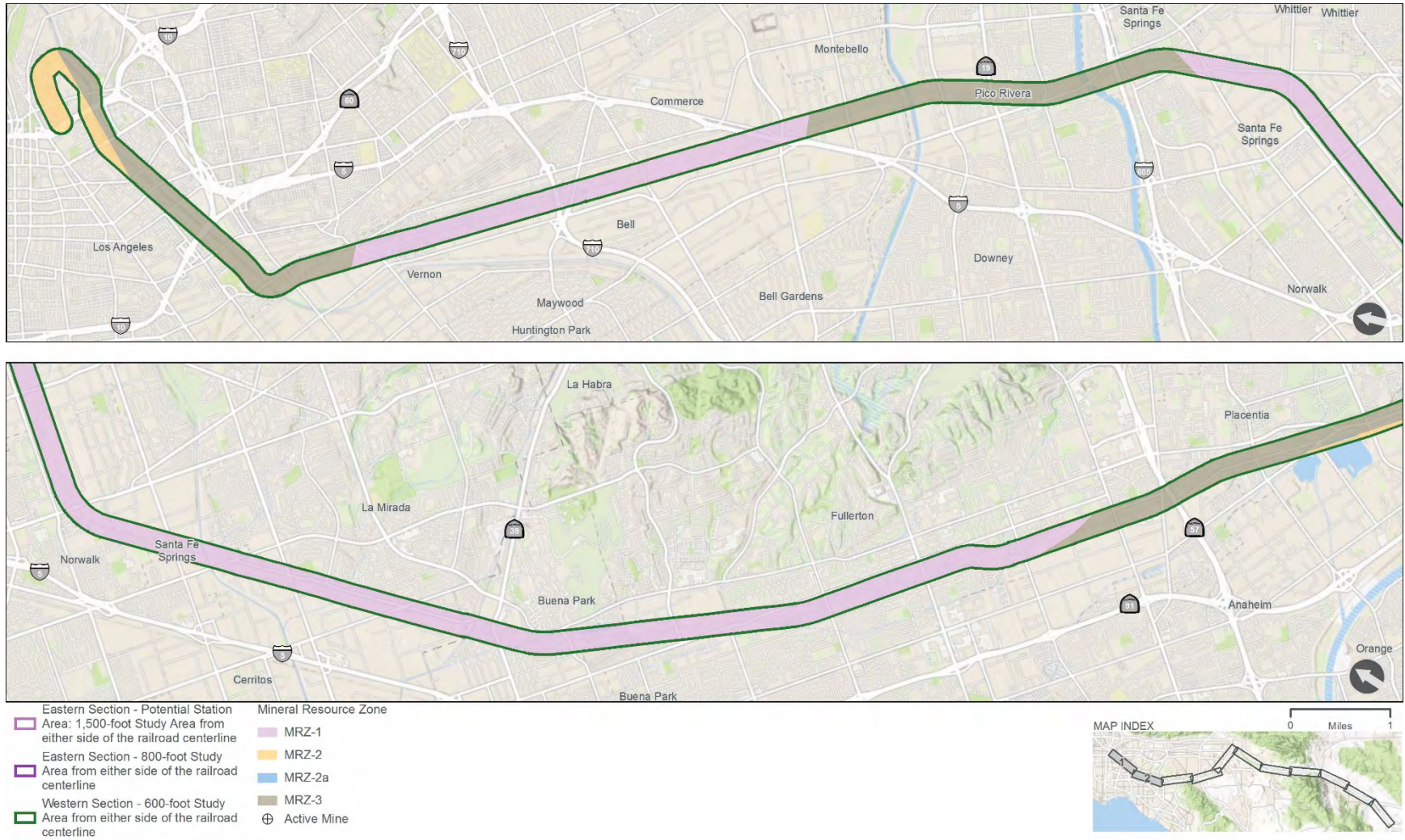
Notes:

MRZ=mineral resource zone

As shown on Figure 3.10-3, the Tier 1/Program EIS/EIR Study Area traverses multiple MRZs.

Figure 3.10-3. Mineral Resource Zones within the Tier 1/Program EIS/EIR Study Area

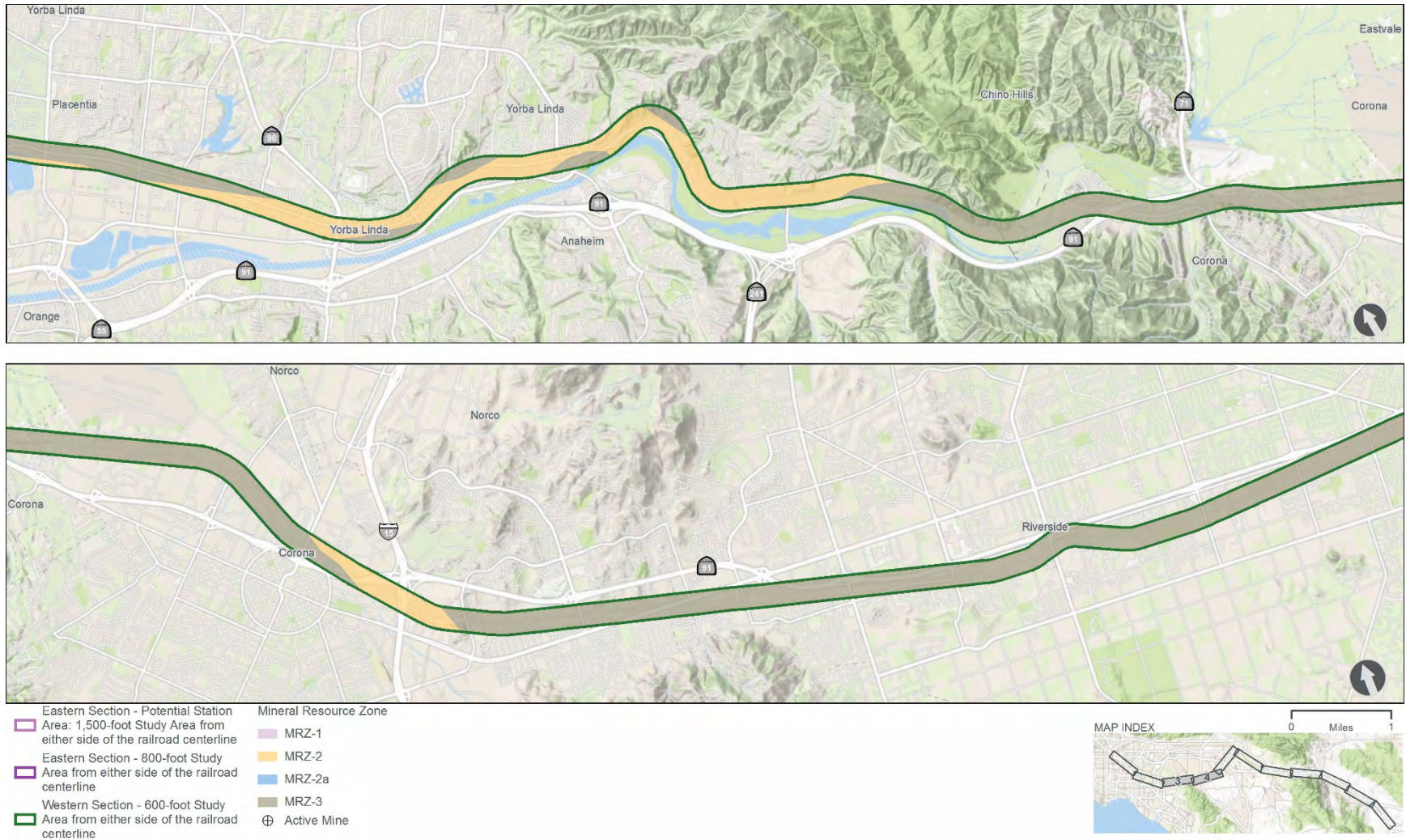
(Sheet 1 of 6)



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Figure 3.10-3. Mineral Resource Zones within the Tier 1/Program EIS/EIR Study Area

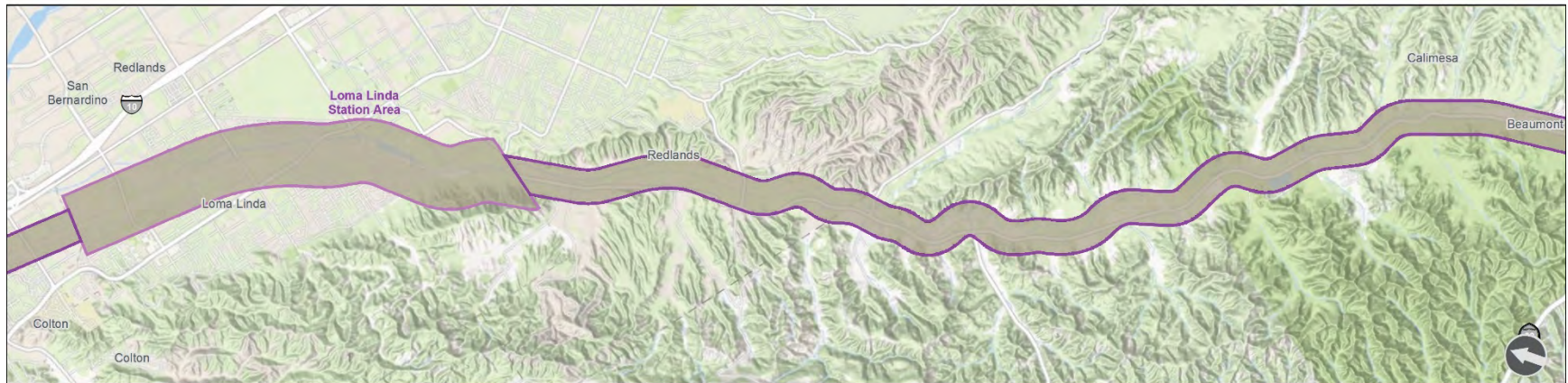
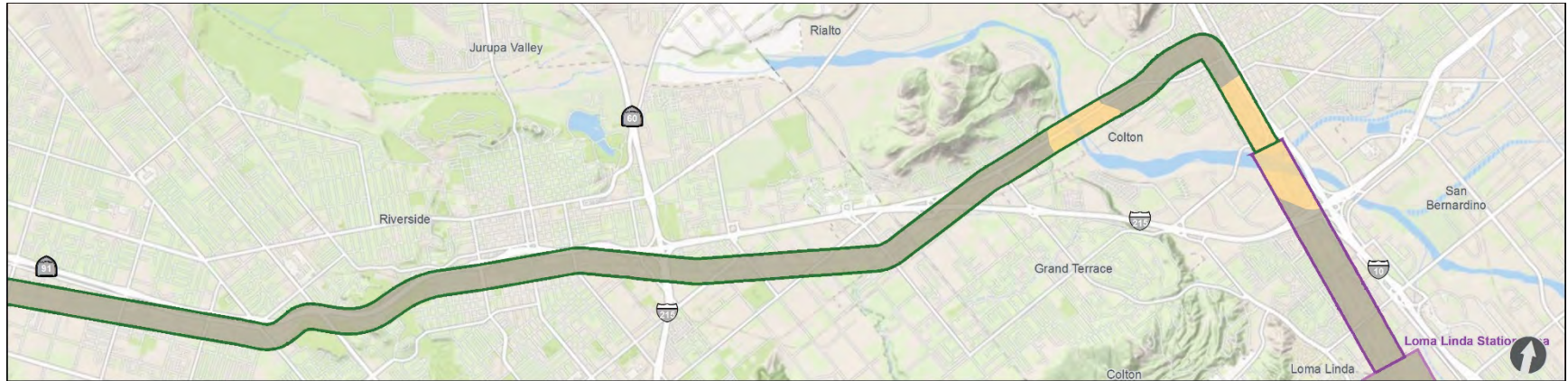
(Sheet 2 of 6)



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Figure 3.10-3. Mineral Resource Zones within the Tier 1/Program EIS/EIR Study Area

(Sheet 3 of 6)



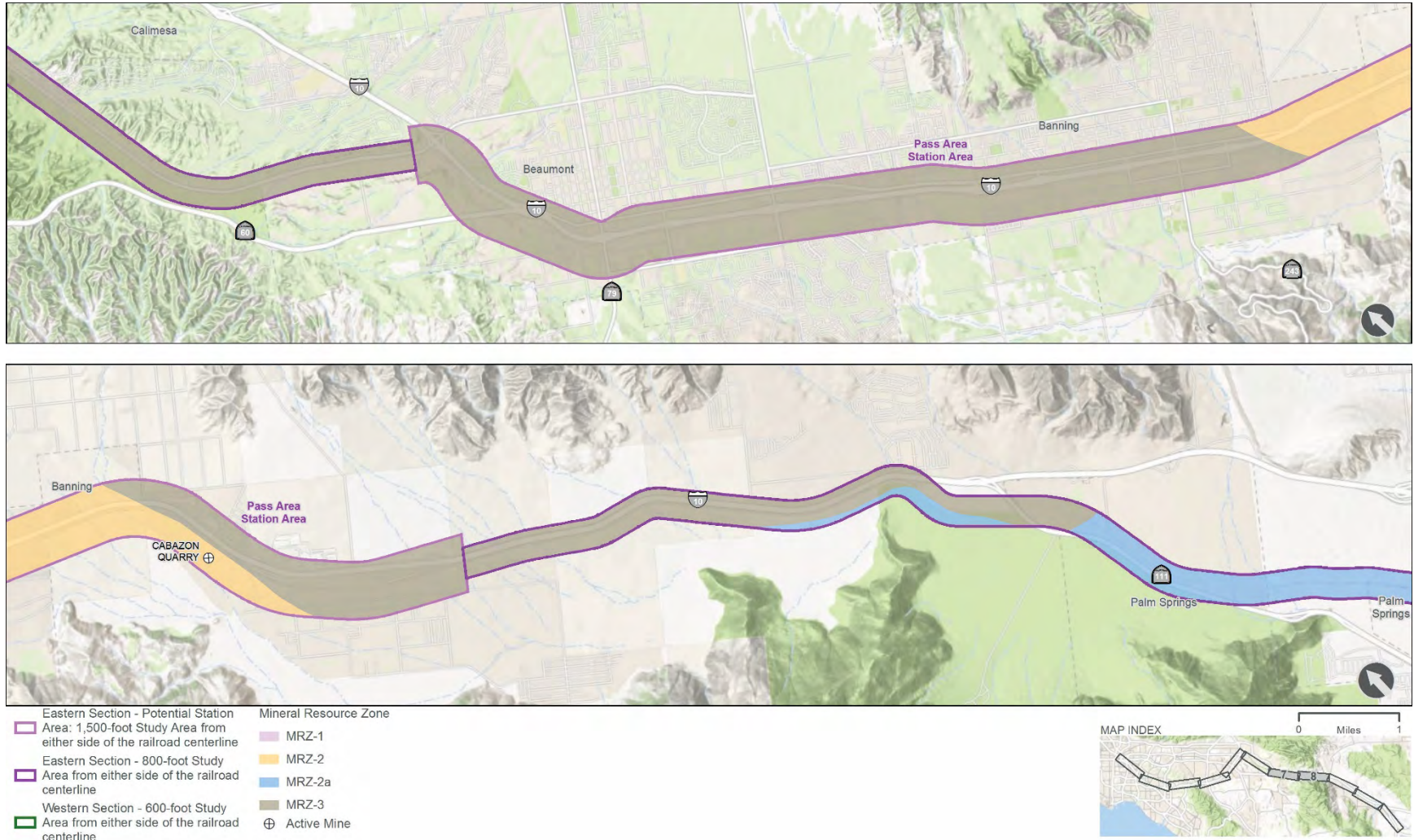
- | | |
|---|---|
| <ul style="list-style-type: none"> Eastern Section - Potential Station Area: 1,500-foot Study Area from either side of the railroad centerline Eastern Section - 800-foot Study Area from either side of the railroad centerline Western Section - 600-foot Study Area from either side of the railroad centerline | <ul style="list-style-type: none"> MRZ-1 MRZ-2 MRZ-2a MRZ-3 ⊕ Active Mine centerline |
|---|---|



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Figure 3.10-3. Mineral Resource Zones within the Tier 1/Program EIS/EIR Study Area

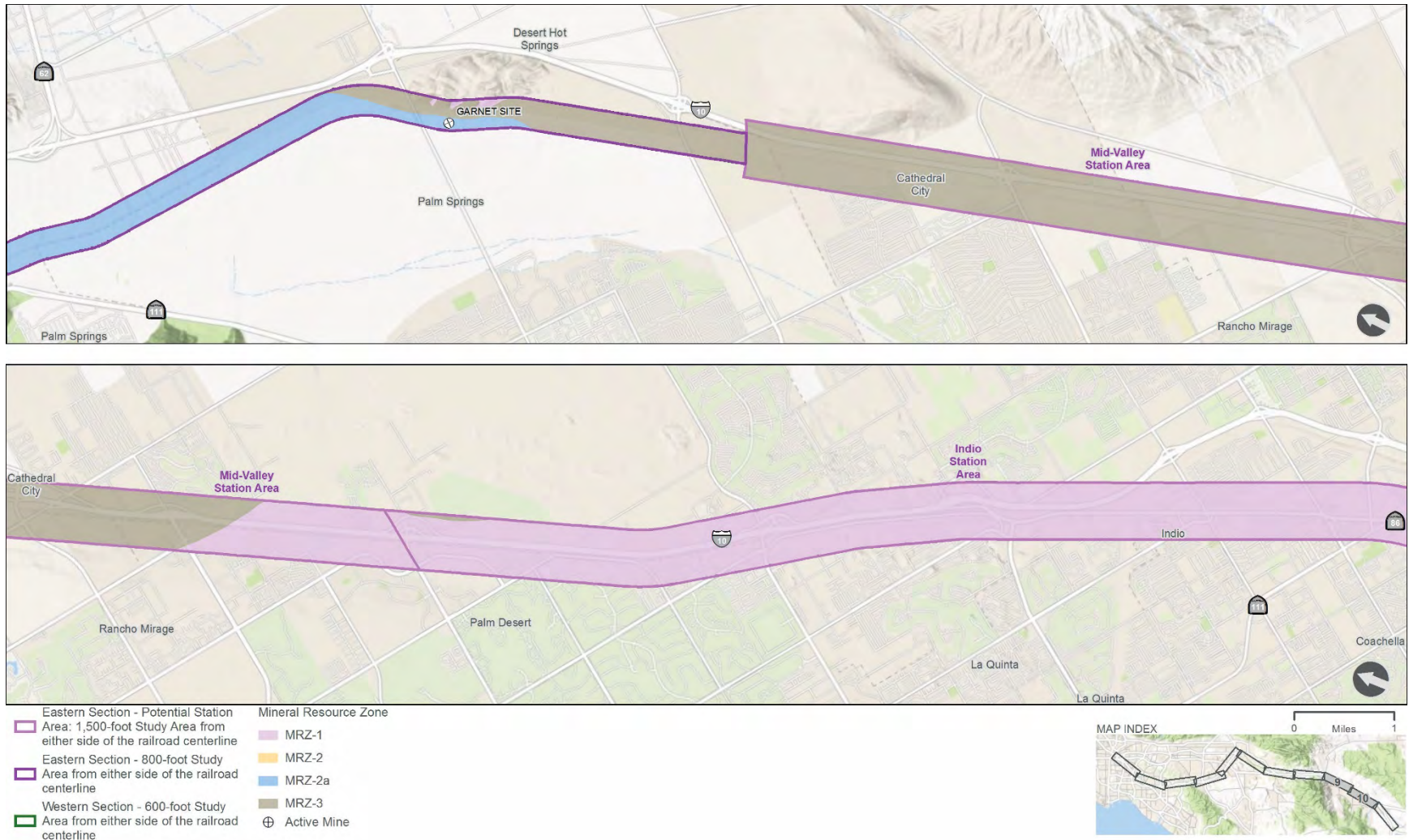
(Sheet 4 of 6)



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Figure 3.10-3. Mineral Resource Zones within the Tier 1/Program EIS/EIR Study Area

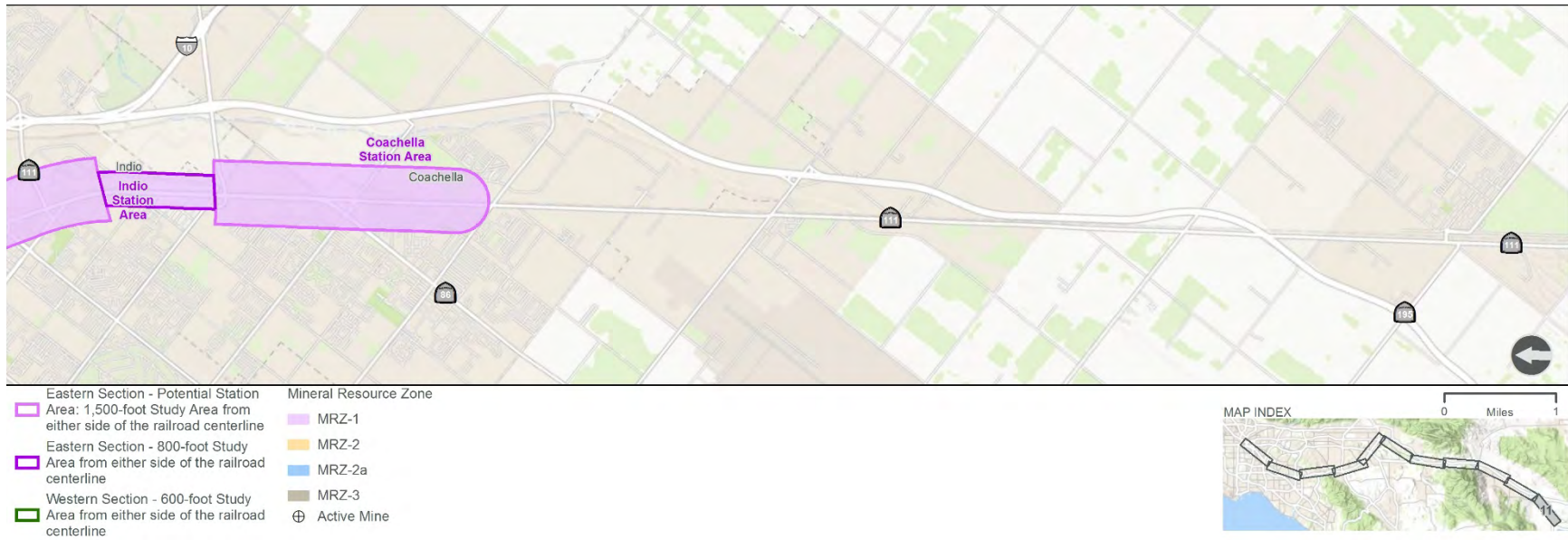
(Sheet 5 of 6)



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Figure 3.10-3. Mineral Resource Zones within the Tier 1/Program EIS/EIR Study Area

(Sheet 6 of 6)



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Build Alternative Option 1 (Coachella Terminus)

For the Western Section of Build Alternative Option 1, the largest type of MRZ mapped land is MRZ-3 (5,911.9 acres). Other land mapped as MRZ-1 and MRZ-2 are also present within the Western Section. For the Eastern Section of Build Alternative Option 1, the largest type of MRZ mapped land is MRZ-3 (13,550.5 acres). Other land mapped as MRZ-1 and MRZ-2 are also present within the Eastern Section.

Two active mines are identified within the Eastern Section: the Cabazon Quarry and the Garnet Site. As shown on Figure 3.10-3, the Cabazon Quarry, owned and operated by Robertson’s Ready Mix, is located within the Pass Area Station Area with the primary mineral resources mined being sand and gravel. The Garnet Site, owned and operated by Granite Construction Company, is located between the Pass Area Station Area and Mid-Valley Station Area with the primary mineral resources mined being sand and gravel. Table 3.10-7 provides a summary of MRZs within Build Alternative Option 1.

Table 3.10-7. Summary of Mineral Resource Zones (Build Alternative Option 1)

MRZ	Area of Zone within Western Section (acres)	Area of Zone within Eastern Section (acres)	Total Area of Zone (acres)
MRZ-1	2,660.2	5,445.7	8,105.8
MRZ-2	1,535.0	2,654.3	4,189.3
MRZ-3	5,911.9	13,550.5	19,462.4
MRZ-4	0.0	0.0	0.0

Source: USGS 2020

Notes:

MRZ=mineral resource zone

Build Alternative Option 2 (Indio Terminus)

For the Western Section of Build Alternative Option 2, the largest type of MRZ mapped land is MRZ-3 (5,911.9 acres). Other land mapped as MRZ-1 and MRZ-2 are also present within the Western Section. For the Eastern Section of Build Alternative Option 1, the largest type of MRZ mapped land is MRZ-3 (13,550.5 acres). Other land mapped as MRZ-1 and MRZ-2 are also present within the Eastern Section.

Two active mines are identified within the Eastern Section: the Cabazon Quarry and the Garnet Site. Table 3.10-8 provides a summary of MRZs within Build Alternative Option 2.

There are fewer acres of MRZs within Build Alternative Option 2 because of the shorter route alignment and reduced station options.

Table 3.10-8. Summary of Mineral Resource Zones (Build Alternative Options 2 and 3)

MRZ	Area of MRZ within Western Section (acres)	Area of MRZ within Eastern Section (acres)	Total Area of MRZ (acres)
MRZ-1	2,660.2	4574.9	7,235.1
MRZ-2	1,535.0	2,654.3	4,189.3
MRZ-3	5,911.9	13,550.5	19,462.4
MRZ-4	0.0	0.0	0.0

Source: USGS 2020

Notes:

MRZ=mineral resource zone

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

MRZs within Build Alternative Option 3 (Table 3.10-8) are the same as Build Alternative Option 2.

3.10.5 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 related to geology, soils, seismicity, mineral resources, and paleontological resources would be anticipated as a result of constructing any of the Build Alternative Options.

Most effects related to geology, soils, mineral resources, and paleontological resources would occur during construction when the ground is disturbed, and grading and excavation activities could result in impacts on buried resources. Potential impacts resulting from seismic activity in the Tier 1/Program EIS/EIR Study Area would be more likely to occur during operation over the course of the Program's lifespan.

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 associated with the Program would occur, no

effects on geology, soils, seismicity, and paleontological and mineral resources are anticipated under the No Build Alternative. However, due to the seismic nature of Southern California, geologic hazards such as seismically induced fault rupture, ground shaking, landslides, and liquefaction may still occur under the No Build Alternative.

Build Alternative Options 1, 2, and 3

Seismic/Geologic Hazard Effects

CONSTRUCTION

Western Section. The Build Alternative Options would not require construction of additional rail or station infrastructure in the Western Section of the Program Corridor because the existing railroad ROW, and stations from LAUS to Colton would be used. When compared with the No Build Alternative, effects would be negligible because no additional construction activities are planned within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Construction of Build Alternative Option 1, 2, or 3 in the Eastern Section of the Program Corridor would require the construction of rail stations, reconfiguration of existing or creation of new rail facilities, and potential ROW acquisition. If a passenger rail system is constructed and operated within the existing rail ROW, no ROW acquisitions would be required. However, the Tier 1/Program EIS/EIR Study Area allows for infrastructure and station facilities to be located beyond the limits of the existing rail ROW, which would require acquisition of land that could be within a potential seismic or geologic hazard zone.

Soil types and geologic formations are indications of stability for Program infrastructure and facilities and longevity of service. Soils with high clay content often have high shrink/swell potential and are generally poorly suited for railway, road, or foundation bases. Such soils may need to be excavated and replaced prior to construction or treated in place to limit effects on proposed structures.

Construction activities may also disturb or modify soils and slopes and must be managed through standard engineering practices and design to avoid and minimize potential risk. Additionally, some portions of the Eastern Section traverse areas with moderate to high susceptibility to landslides and liquefaction.

While applicable building codes and design features to address potential seismic or geologic hazards would be adhered to and developed, potential effects depend on where the infrastructure improvements, including new stations, which have not yet been selected, would be located. Which properties would be affected by the future construction and operation of a passenger rail system, and to what extent, cannot be determined at this time. The Tier 2/Project-level analysis would

evaluate the selected site and proposed infrastructure improvement or station facility and whether people or structures are exposed to increased seismic or geologic hazard risk.

When compared with the No Build Alternative, Build Alternative Option 1 could have a moderate effect associated with seismic or geologic hazard zones within the Eastern Section of the Program Corridor. When compared with Build Alternative Option 1, Build Alternative Option 2 may have slightly reduced effects due to a smaller footprint associated with a shorter route alignment and reduced station options; however, the magnitude of effects would be similar and would 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 would be considered moderate when compared with the No Build Alternative.

OPERATION

Western Section. Operation of Build Alternative Option 1, 2, or 3 within the Western Section would not result in new effects associated with seismic or geologic hazards, as the additional train trips would travel within an existing railroad ROW. When compared with the No Build Alternative, effects associated with seismic or geologic hazards would be negligible because no additional infrastructure improvements are planned within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. The Build Alternative Options cross AP fault zones capable of ground rupture and would be generally susceptible to earthquakes resulting in ground shaking. Additionally, some portions of the Eastern Section traverse areas with moderate to high susceptibility to landslides and liquefaction. Operation would comply with federal, state, and local design and safety criteria regarding structural integrity to protect the public and property from geologic, soil, and seismic hazards. The Tier 2/Project-level analysis would evaluate site-specific impacts associated with seismic or geologic hazard areas and whether operation of a facility would result in effects on the public.

When compared with the No Build Alternative, Build Alternative Option 1 could have a moderate effect on seismic or geologic hazards 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 would be considered moderate when compared with the No Build Alternative. When compared with Build Alternative Options 1 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 would be considered moderate when compared with the No Build Alternative.

Paleontological Resource Effects

CONSTRUCTION

Western Section. The Build Alternative Options would not require construction of additional rail or station infrastructure in the Western Section of the Program Corridor because the existing railroad, and stations from LAUS to Colton would be used. When compared with the No Build Alternative, short-term/temporary effects associated with the paleontological resources would be negligible because no additional construction activities are planned within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Construction of Build Alternative 1, 2, or 3 in the Eastern Section of the Program Corridor would require the construction of rail stations, reconfiguration of existing or creation of new rail facilities, and potential ROW acquisition. These construction activities could occur in areas identified as having undetermined or high paleontological sensitivity. Direct physical effects on paleontological resources may include damage or destruction during ground-disturbing activities associated with construction of rail infrastructure improvements or station facilities.

Excavation of the sediments within a high paleontological sensitivity area could destroy or degrade the condition of the fossil. Additionally, the nature of excavation activities would cause any fossils to be removed from their stratigraphic context, thereby reducing the scientific usefulness of the fossil. Paleontological resources are considered a finite and unique resource. Once disturbed or removed, that resource is effectively eliminated. When compared with the No Build Alternative, Build Alternative Option 1 could have a substantial effect on paleontological resources 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 substantial 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 would be considered substantial when compared with the No Build Alternative. However, detailed analysis of ROW acquisition impacts would be completed in a Tier 2/Project-level analysis.

OPERATION

Western Section. Operation of Build Alternative Option 1, 2, or 3 within the Western Section would not result in new effects associated with paleontological resources, as the additional train trips would travel within an existing railroad ROW. When compared with the No Build Alternative, effects associated with paleontological resources would be negligible because no additional infrastructure improvements are planned within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Once construction ceases, operation of the new railroad infrastructure and stations under the Build Alternative Options are not anticipated to result in changes associated with paleontological resources. Operational effects associated with the Eastern Section of Build Alternative Option 1 would be negligible when compared with the No Build Alternative. When compared with Build Alternative Option 1, Build Alternative Option 2 would have the same magnitude of effect and be 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 would be considered negligible when compared with the No Build Alternative.

Mineral Resource Effects

CONSTRUCTION

Western Section. Operation of Build Alternative Option 1, 2, or 3 within the Western Section would not result in effects on mineral resources, as the additional train trips would travel within an existing railroad ROW. When compared with the No Build Alternative, effects on mineral resources would be negligible because no additional infrastructure improvements are planned within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Construction of Build Alternative 1, 2, or 3 in the Eastern Section of the Program Corridor would require the construction of rail stations, reconfiguration of existing or creation of new rail facilities, and potential ROW acquisition. These would require the conversion of non-transportation land to a transportation use. The site-specific design that would be developed in later Program phases would determine the extent to which land use conversions occur. If the rail infrastructure or station facility is within the ROW of, or closely parallel to, an existing transportation corridor, the extent of land conversion would be minimal. However, the further rail infrastructure or a station facility departs from an existing transportation feature, the greater the likelihood for land use conversion, ranging from building on vacant/undeveloped land to potential displacement of existing structures.

If a passenger rail system is constructed and operated within the existing rail ROW, no ROW acquisitions would be required. However, the Tier 1/Program EIS/EIR Study Area allows for infrastructure and station facilities to be located beyond the limits of the existing rail ROW, which would require acquisition of land not designated for transportation uses. Which mineral resources would be affected by the future construction and operation of a passenger rail system, and to what extent, cannot be determined at this time.

If MRZ mapped lands within the Eastern Section of the Program Corridor are converted to a transportation use, it would be considered an adverse effect. Mineral resource lands are considered a finite and unique resource; once mineral resource land is converted to other uses, that resource is effectively eliminated. When compared with the No Build Alternative, Build Alternative Option 1 could have a substantial effect on mineral resources 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 substantial 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 would be considered substantial when compared with the No Build Alternative. However, detailed analysis of ROW acquisition impacts would be completed in a Tier 2/Project-level analysis.

OPERATION

Western Section. Operation of Build Alternative Option 1, 2, or 3 within the Western Section would not result in new effects associated with mineral resources or mineral resource sites, as the additional train trips would travel within an existing railroad ROW. When compared with the No Build Alternative, effects associated with mineral resources would be negligible because no additional infrastructure improvements are planned within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Once construction ceases, operation of the new railroad infrastructure and stations under the Build Alternative Options are not anticipated to result in changes associated with mineral resources or mineral resource sites. Operational effects associated with the Eastern Section of Build Alternative Option 1 would be negligible when compared with the No Build Alternative. When compared with Build Alternative Option 1, Build Alternative Option 2 would have the same magnitude of effect and be 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 would be considered negligible when compared with the No Build Alternative.

3.10.6 NEPA Summary of Potential Effects

Table 3.10-9 through Table 3.10-11 summarizes 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 relative magnitude of potential effects on geology, soils, seismicity, paleontological resources, and mineral resources under each of the Build Alternative Options. Specific mitigation measures to reduce effects would be identified during the Tier 2/Project-level analysis.

Table 3.10-9. NEPA Summary of Effects on Seismic and Geologic Hazards

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

Notes:

^a The No Build Alternative includes existing and potential expansion of roadway, passenger rail, and air travel facilities within the Tier 1/Program EIS/EIR Study Area; however, for the service-level evaluation, identifying levels of effect from potential expansion of those facilities is speculative and would be dependent on Project-specific analysis.

Table 3.10-10. NEPA Summary of Effects on Paleontological Resources

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

Notes:

- ^a The No Build Alternative includes existing and potential expansion of roadway, passenger rail, and air travel facilities within the Tier 1/Program EIS/EIR Study Area; however, for the service-level evaluation, identifying levels of effect from potential expansion of those facilities is speculative and would be dependent on Project-specific analysis.

Table 3.10-11. NEPA Summary of Effects on Mineral Resources

Alternative Option	Potential Intensity of Effect: Western Section	Potential Intensity of Effect: Eastern Section
No Build Alternative ^a	Construction: None Operation: None	Construction: None Operation: None
Build Alternative Option 1 (Coachella Terminus)	Construction: Negligible Operation: Negligible	Construction: Substantial Operation: Negligible
Build Alternative Option 2 (Indio Terminus)	Construction: Negligible Operation: Negligible	Construction: Substantial Operation: Negligible

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

Notes:

^a The No Build Alternative includes existing and potential expansion of roadway, passenger rail, and air travel facilities within the Tier 1/Program EIS/EIR Study Area; however, for the service-level evaluation, identifying levels of effect from potential expansion of those facilities is speculative and would be dependent on Project-specific analysis.

3.10.7 CEQA Summary of Potential Impacts

Based on the information provided in Section 3.10.4 and 3.10.5, and considering the CEQA Guidelines Appendix G Checklist questions for geology, soils, paleontological resources, and mineral resources, the Build Alternative Options would have a potentially significant impact on geology, soils, paleontological resources, and mineral resources when reviewed on a Program-wide basis. Placing the infrastructure improvements and new stations largely within or along the existing ROW reduces the potential for significant impacts on these resources; however, because the sites have not been selected, some resources may be significantly impacted. At the programmatic analysis level, it is not possible to know the location, extent, and characteristics of impacts on these resources. Proposed programmatic mitigation strategies discussed in Section 3.10.8 would be applied to reduce potential impacts.

Table 3.10-12 summarizes the CEQA significance conclusions for the Build Alternative Options; the proposed programmatic mitigation strategies that could be applied to minimize, reduce, or avoid the potential impacts; and the significance determination after mitigation strategies are applied. The identification and implementation of additional site-specific mitigation measures necessary for Project implementation would occur as part of the Tier 2/Project-level analysis.

Table 3.10-12. CEQA Summary of Impacts for Geology, Soils, and Mineral Resources

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p><i>Would the Program directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?</i></p>		
<p><i>Construction</i></p>		
<p>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.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – Potentially Significant. Potential exposure to seismic hazards during construction activities are dependent on the location of rail infrastructure improvements and station facilities, which are currently unknown. Build Alternative Options 1, 2, and 3 cross areas where identified earthquake faults and AP fault zones are present; therefore, there is potential for significant impacts. The Tier 2/Project-level analysis would evaluate the potential of seismic risk and whether people or structures would be exposed to significant seismic risk during construction activities.</p>	<p>GEO-1</p>	<p>Less than Significant. GEO-1 would minimize, reduce, or avoid potential impacts associated with construction activities within areas containing potential seismic hazards through design and further analysis during the Tier 2/Project-level environmental process.</p>
<p><i>Operation</i></p>		
<p>Western Section – Less Than Significant. The Western Section of the Program Corridor is subject to seismic ground shaking due to the existing geologic conditions in Southern California. The increased train service (two additional round-trip daily trains within the Program Corridor) would not change existing land use and would not result in new seismic hazards to the public or the environment. Therefore, a less than significant impact under Build Alternative Option 1, 2, or 3 is anticipated at the Tier 1/Program EIS/EIR evaluation level.</p>	<p>Not applicable</p>	<p>Not applicable</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Potentially Significant. Once construction ceases, operation of the new railroad infrastructure and stations under the Build Alternative Options are not anticipated to result in changes associated with seismic hazard zones. However, the operation of new station facilities within seismic hazard zones could result in an increased seismic hazard risks to people or structures in the area; therefore, there is potential for significant impacts. The Tier 2/Project-level analysis would evaluate the potential for people or structures to be exposed to seismic hazards during operation.</p>	<p>LU-3</p>	<p>Less than Significant. LU-3 would minimize, reduce, or avoid potential impacts on people and structures resulting from seismic hazards through design and further analysis during the Tier 2/Project-level environmental process.</p>
<p><i>Would the Program directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death involving strong seismic ground shaking?</i></p>		
<p><i>Construction</i></p>		
<p>Western Section – No Impact. Although the Western Section of the Program Corridor would be subject to seismic ground shaking, 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.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – Potentially Significant. Potential exposure to strong seismic shaking during construction activities are dependent on the location of rail infrastructure improvements and station facilities, which are currently unknown. Build Alternative Options 1, 2, and 3 cross areas where strong seismic shaking could occur; therefore, there is potential for significant impacts. The Tier 2/Project-level analysis would evaluate the potential of seismic risk and whether people or structures would be exposed to significant seismic risk during construction activities.</p>	<p>GEO-1</p>	<p>Less than Significant. GEO-1 would minimize, reduce, or avoid potential impacts associated with construction activities within areas subject to strong seismic ground shaking through design and further analysis during the Tier 2/Project-level environmental process.</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Operation		
<p>Western Section – Less Than Significant. The Western Section of the Program Corridor is subject to seismic ground shaking due to the existing geologic conditions in Southern California. 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 seismic hazards to the public or the environment. Therefore, a less than significant impact under Build Alternative Option 1, 2, or 3 is anticipated at the Tier 1/Program EIS/EIR evaluation level.</p>	Not applicable	Not applicable
<p>Eastern Section – Potentially Significant. Once construction ceases, operation of the new railroad infrastructure and stations under the Build Alternative Options are not anticipated to result in changes associated with seismic hazard zones. However, the operation of new station facilities within seismic hazard zones could result in an increased seismic hazard risks to people or structures in the area; therefore, there is potential for significant impacts. The Tier 2/Project-level analysis would evaluate the potential for people or structures to be exposed to seismic hazards during operation.</p>	LU-3	<p>Less than Significant. LU-3 would minimize, reduce, or avoid potential impacts on people and structures resulting from seismic hazards through design and further analysis during the Tier 2/Project-level environmental process.</p>
<p><i>Would the Program directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death involving seismic-related ground failure, including liquefaction?</i></p>		
Construction		
<p>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.</p>	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Potentially Significant. Potential impacts from seismic-related ground failure are dependent on the location of rail infrastructure improvements and station facilities, which are currently unknown. Numerous faults and areas of high susceptibility to liquefaction are located within Build Alternative Options 1, 2, and 3. These seismic hazard areas would be considered during design with proposed infrastructure and structures required to adhere to all California Building Code requirements to address seismic safety. However, until a site-specific Project is identified, it is unknown if impacts would be significant. The Tier 2/Project-level analysis would identify and analyze site-specific impacts associated with seismic-related ground failure.</p>	<p>GEO-1</p>	<p>Less than Significant. GEO-1 would minimize, reduce, or avoid potential impacts related to seismic-related ground failure through design and further analysis during the Tier 2/Project-level environmental process.</p>
<p>Operation</p>		
<p>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 result in an exacerbation of liquefaction risks or hazards. Therefore, no impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – No Impact. Once construction ceases, operation of the new railroad infrastructure and stations under the Build Alternative Options are not anticipated to result in changes associated with liquefaction conditions. Therefore, no impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Would the Program directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death involving landslides?		
Construction		
<p>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.</p>	Not applicable	Not applicable
<p>Eastern Section – Potentially Significant. Potential construction impacts resulting from landslides are dependent on the location of rail infrastructure improvements and station facilities, which are currently unknown. For construction activities that would occur in areas of high landslide susceptibility, there is an increased risk of landslide impacts due to increased human activity (e.g., movement of soils). The Tier 2/Project-level analysis would evaluate the potential of landslide risk and whether people or structures would be exposed to significant landslide risk during construction activities.</p>	GEO-1	<p>Less than Significant. GEO-1 would minimize, reduce, or avoid potential impacts related to landslide hazards through design and further analysis during the Tier 2/Project-level environmental process.</p>
Operation		
<p>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 result in an exacerbation of landslide risks or hazards. Therefore, no operational impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Potentially Significant. Once construction ceases, operation of the new railroad infrastructure and stations under Build Alternative Option 1, 2, or 3 are not anticipated to result in changes associated with landslide hazard zones. However, the operation of new station facilities within landslide hazard zones could result in an increased landslide risk to people or structures in the area; therefore, there is potential for significant impacts. The Tier 2/Project-level analysis would evaluate the potential for people or structures to be exposed to landslide risk during operation.</p>	<p>LU-3</p>	<p>Less than Significant. LU-3 would minimize, reduce, or avoid potential impacts on people and structures resulting from landslides through design and further analysis during the Tier 2/Project-level environmental process.</p>
<p><i>Would the Program result in substantial soil erosion or the loss of topsoil?</i></p>		
<p><i>Construction</i></p>		
<p>Western Section – No Impact. No construction impacts 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.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – Potentially Significant. Construction activities associated with rail infrastructure improvements or station facilities under Build Alternative Option 1, 2, or 3 would include clearing, grading, and excavation, which have the potential to result in soil erosion; therefore, there is potential for significant impacts. The Tier 2/Project-level analysis would identify and evaluate impacts associated with site-specific drainage patterns changes and the potential for site-specific construction activities to result in soil erosion and loss of topsoil.</p>	<p>HWQ-2 LU-3</p>	<p>Less than Significant. HWQ-2 and LU-3 would minimize, reduce, or avoid potential impacts related to soil erosion or topsoil loss by requiring compliance with applicable regulations. BMPs would be identified to minimize, reduce or, avoid potential impacts from erosion or siltation.</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Operation		
<p>Western Section – No Impact. 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. However, these maintenance activities do not require the alteration of existing drainage patterns or the addition of new impervious surfaces. Therefore, no impacts associated with soil erosion or loss of topsoil are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	Not applicable	Not applicable
<p>Eastern Section – No Impact. Operational activities would consist of ongoing maintenance of existing infrastructure and would not require the alteration of existing drainage patterns or the addition of new impervious surfaces once construction is complete. Therefore, no impacts associated with soil erosion or loss of topsoil are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	Not applicable	Not applicable
<p><i>Would the Program be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Program and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?</i></p>		
Construction		
<p>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.</p>	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Potentially Significant. Potential impacts are dependent on the location of rail infrastructure improvements or station facilities, which are currently unknown. These facilities and infrastructure could be located within an area containing unstable soil characteristics that could result in seismic hazards. These seismic hazard areas would be considered during Project design with proposed infrastructure and structures required to adhere to all California Building Code requirements to address seismic safety. However, until a site-specific Project is identified, it is unknown if impacts would be significant. The Tier 2/Project-level analysis would identify and mitigate site-specific impacts associated with seismic-related ground failure.</p>	<p>GEO-1</p>	<p>Less than Significant. GEO-1 would minimize, reduce, or avoid potential impacts related to unstable soil through design and further analysis during the Tier 2/Project-level environmental process.</p>
<p>Operation</p>		
<p>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 result in impacts associated with unstable soils. Therefore, no impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – No Impact. Once construction ceases, operation of the new railroad infrastructure and stations under the Build Alternative Options are not anticipated to result in changes associated with unstable soil conditions. Therefore, no impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Would the Program be located on expansive soil, as defined in Table 18-1-B of the UBC (1994), creating substantial direct or indirect risk to life or property?		
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 impacts under Build Alternative Option 1, 2, or 3 related to expansive soil are dependent on the location of rail infrastructure improvements and station facilities, which are currently unknown. The Tier 2/Project-level analysis would identify and mitigate impacts associated with expansive soils.	GEO-1	Less than Significant. GEO-1 would minimize, reduce, or avoid potential impacts related to expansive soil through design and further analysis during the Tier 2/Project-level environmental process.
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 result in expansive soil hazards. Therefore, 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. Once construction ceases, operation of the new railroad infrastructure and stations under the Build Alternative Options are not anticipated to result in changes associated with expansive soils. Therefore, 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

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<i>Would the Program have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?</i>		
<i>Construction</i>		
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 – No Impact. During construction activities, the contractor would provide portable toilets on site, which would then be removed from the site on a regular basis for off-site servicing at an approved wastewater handling facility. Therefore, the use of alternative wastewater disposal systems are not anticipated during construction. No construction impacts associated with alternative wastewater disposal systems are anticipated under Build Alternative Option 1, 2, or 3 at the Tier 1/Program EIS/EIR evaluation level.	Not applicable	Not applicable
<i>Operation</i>		
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 that would result in the need for alternative wastewater disposal systems. Therefore, 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

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – No Impact. Operation of the Program under Build Alternative Option 1, 2, or 3 would require continual maintenance rail infrastructure and station facilities. The operation of maintenance and station facilities would generate wastewater; however, it is anticipated that these facilities would be connected to the local wastewater facility system and not to septic tanks or alternative wastewater disposal systems. Therefore, no impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	Not applicable	Not applicable
<p><i>Would the Program directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?</i></p>		
<p><i>Construction</i></p>		
<p>Western Section – No Impact. Destruction of a unique paleontological resource or geologic feature would not occur because no physical improvements are proposed or required within the Western Section. Therefore, no impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	Not applicable	Not applicable
<p>Eastern Section – Potentially Significant. Potential impacts on paleontological resources depend on the location of rail infrastructure improvements, station facilities, and the types of construction activities, which are currently unknown. The Eastern Section contains multiple areas of high paleontological sensitivity with the potential for subsurface resources to exist. Therefore, potentially significant impacts under Build Alternative Option 1, 2, or 3 are anticipated at the Tier 1/Program EIS/EIR evaluation level.</p>	<p>PAL-1 LU-3</p>	<p>Potentially Significant. PAL-1 and LU-3 would minimize, reduce, or avoid potential impacts on paleontological resources through design, further analysis, and the avoidance of resources. However, it is unknown to what extent and type of impact on paleontological resources would occur. Impacts may remain significant and unavoidable if further analysis determines that a non-renewable paleontological resource would be impacted by the rail infrastructure improvement or station facility proposed.</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Operation		
<p>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 result in the destruction of a unique paleontological resource or site or unique geologic feature within the Western Section of the Program Corridor. Therefore, no impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – No Impact. Once construction is complete, operation of Build Alternative Option 1, 2, or 3 would not result impacts on paleontological resources within the Eastern Section of the Program Corridor. Therefore, no impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Would the Program result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?</p>		
Construction		
<p>Western Section – No Impact. No loss of availability of a known mineral resource would occur because no physical improvements are proposed or required within the Western Section. Therefore, no impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Potentially Significant. Potential impacts on mineral resources and associated plans and policies under Build Alternative Option 1, 2, or 3 are dependent on the location of rail infrastructure improvements and station facilities, which are currently unknown. The Tier 2/Project-level analysis would identify and analyze impacts associated with the loss of availability of a known mineral resource.</p>	<p>LU-3</p>	<p>Potentially Significant. LU-3 would minimize, reduce, or avoid potential impacts from conflicts with plans and policies through design and further analysis. However, impacts may remain significant and unavoidable, as further analysis may determine that there is a conflict that cannot be mitigated between land uses.</p>
<p>Operation</p>		
<p>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 result in the loss of availability of a known mineral resource within the Western Section of the Program Corridor. Therefore, no impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – No Impact. Once construction is complete, operation of Build Alternative Option 1, 2, or 3 would not result in the loss of availability of a known mineral resource within the Eastern Section of the Program Corridor. Therefore, no impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<i>Would the Program result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?</i>		
<i>Construction</i>		
<p>Western Section – No Impact. No loss of availability of a known mineral resource would occur because no physical improvements are proposed or required within the Western Section. Therefore, no impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	Not applicable	Not applicable
<p>Eastern Section – Potentially Significant. Potential impacts on mineral resources and associated plans and policies under Build Alternative Option 1, 2, or 3 are dependent on the location of rail infrastructure improvements and station facilities, which are currently unknown. The Tier 2/Project-level analysis would identify and analyze impacts associated with the loss of availability of a locally important mineral resource recovery site.</p>	LU-3	<p>Potentially Significant. LU-3 would minimize, reduce, or avoid potential impacts from conflicts with plans and policies through design and further analysis. However, impacts may remain significant and unavoidable, as further analysis may determine that there is a conflict that cannot be mitigated between land uses.</p>
<i>Operation</i>		
<p>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 result in conflicts with locally important mineral resource recovery sites within the Western Section of the Program Corridor. Therefore, no impacts under Build Alternative Option 1, 2, or 3 are anticipated at the Tier 1/Program EIS/EIR evaluation level.</p>	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – No Impact. Once construction is complete, operation of Build Alternative Option 1, 2, or 3 would not conflict with locally important mineral resource recovery sites within the Eastern Section of the Program Corridor. Therefore, no impacts under Build Alternative Option 1, 2, or 3 are anticipated at the Tier 1/Program EIS/EIR evaluation level.</p>	<p>Not applicable</p>	<p>Not applicable</p>

Notes:

AP=Alquist-Priolo; BMP=best management practice; EIR=environmental impact report; EIS=environmental impact statement; UBC=Uniform Building Code

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3.10.8 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 the Tier 2/Project-level analysis after design details are known and specific impacts are identified. Potential mitigation measures would be developed in consultation with the agency with jurisdiction over the resource.

Examples of programmatic mitigation strategies for geology, soils, seismicity, and mineral resources would include preparation of a preliminary geotechnical report to identify existing conditions, design considerations for alternative construction methods, and slope/soil stabilization measures where moderate to high effects are expected. Examples of programmatic mitigation strategies for paleontological resources would depend on the presence of significant paleontological resources and rock units with a high or undermined potential for containing significant fossils. Proposed programmatic mitigation strategies, consistent with state and federal regulations, include, but are not limited to, the following:

Mitigation Strategy GEO-1: During the Tier 2/Project-level analysis, a preliminary geotechnical report shall be prepared by a licensed geotechnical or civil engineer for the specific rail infrastructure or station facility proposed. The preliminary geotechnical report shall include, but not be limited to, analysis and recommendations on the following topics:

- Site preparation
- Soil-bearing capacity
- Appropriate sources and types of fill
- Liquefaction
- Lateral spreading
- Corrosive soils
- Structural foundations
- Grading practices

The recommendations identified in the preliminary geotechnical report shall be refined in a final geotechnical report.

Mitigation Strategy PAL-1: During the Tier 2/Project-level analysis, the lead agency or agencies shall determine if a paleontological resources assessment report is required for the specific rail infrastructure or station facility proposed. If required, a paleontological resources assessment report shall be prepared for the specific rail infrastructure or station facility proposed. The report shall include, but not be limited to, analysis and recommendations on the following topics:

- Geologic context of the region and site and the potential to contain paleontological resources
- A records search of institutions holding paleontological collections from the Southern California region
- A review of published and unpublished literature for past paleontological finds in the area

If the paleontological resources assessment report identifies that paleontological resources are present at the site or if the geologic units to be encountered by the Project are designated as having a high paleontological sensitivity by the applicable local jurisdiction and lead agency, a paleontological resources impact mitigation program shall be prepared and implemented by a professional paleontologist as defined under Secretary of the Department of the Interior Standards. The paleontological resource impact mitigation program shall include, but not be limited to, the following:

- The qualifications of the principal investigator and monitoring personnel
- Construction crew awareness training content, procedures, and requirements
- Measures to prevent potential looting, vandalism, or erosion impacts
- Location, frequency, and schedule for on-site monitoring activities
- Criteria for identifying and evaluating potential fossil specimens or localities
- A plan for the use of protective barriers and signs or implementation of other physical or administrative protection measures
- Collection and salvage procedures
- Identification of an institution or museum willing and able to accept any fossils discovered
- Compliance monitoring and reporting procedures

Mitigation Strategy HWQ-2: Based on the results of the Tier 2/Project-level analysis and recommendations, the construction of specific rail infrastructure or station facility proposed shall comply with the provisions of the National Pollutant Discharge Elimination System General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order Number 2009-0009-DWQ, National Pollutant Discharge Elimination System Number CAS000002), and any subsequent amendments (Order Number 2010-0014-DWQ and Order Number 2012-0006-DWQ). These provisions shall include, but are not limited to, the following:

- Construction activities shall not commence until a waste discharger identification number is received from the State Water Resources Control Board Stormwater Multiple Application and Report Tracking System.
- Identification of good housekeeping, erosion control, and sediment control best management practices shall be utilized during construction activities.
- A stormwater pollution prevention plan shall be prepared.
- A rain event action plan shall be prepared.
- A notice of termination shall be submitted to the State Water Resources Control Board within 90 days of completion of construction and stabilization of the site.

These requirements, and any additional approvals, shall be determined in coordination with the governing agencies or local jurisdiction before construction on a project commences.

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 resources 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.

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3.11 Hazards and Hazardous Materials

3.11.1 Introduction

This section identifies the potential of hazards and hazardous materials, including wildfire hazards, within the Tier 1/Program EIS/EIR Study Area and evaluates the effects of associated with implementing the No Build Alternative and Build Alternative Options on these areas.

3.11.2 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 potential hazards and hazardous material sites within the Tier 1/Program EIS/EIR Study Area, and evaluated the potential effects and impacts that could occur from implementation of the Build Alternative Options.

Federal

The Comprehensive Environmental Response, Compensation, and Liability Act (42 United States Code Section 9601 et seq.)

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) provides broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA establishes requirements concerning closed and abandoned hazardous waste sites; provides for liability of persons responsible for releases of hazardous waste at these sites; and establishes a trust fund to provide for cleanup when no responsible party can be identified.

Federal Occupational Safety and Health Act (29 United States Code Section 651 et seq.)

The Federal Occupational Safety and Health Act, which is implemented by the Occupational Safety and Health Administration, contains requirements, as set forth in Title 29 of the CFR, Part 1910, that are designed to promote worker safety, worker training, and a worker's right-to-know. Occupational Safety and Health Administration requirements would be in effect during construction and operation of the Project to ensure the safety of workers. Title 49 of the CFR requires that every employee who transports hazardous materials receive training to recognize and identify hazardous materials and become familiar with hazardous materials requirements.

National Weather Service

Under extreme fire weather conditions, the National Weather Service issues Red Flag warnings, as part of the National Fire Danger Rating System, which indicate a high risk of large-scale damaging wildfire. Red Flag warning criteria can vary depending upon location; however, the National Oceanic and Atmospheric Administration's general definition specifies that Red Flag criteria occur whenever a geographical area has been in a dry spell for longer than 1 week (or for a shorter period of time before spring green-up or after fall color); the National Fire Danger Rating System is high to extreme; and the following weather parameters are forecasted to be met: 1) a sustained wind average of 15 miles per hour or greater, 2) relative humidity less than or equal to 25 percent, and 3) a temperature of greater than 75 degrees Fahrenheit.

Resource Conservation and Recovery Act of 1976 (42 United States Code Section 6901 et seq.)

Under the Resource Conservation and Recovery Act of 1976 (RCRA), the U.S. EPA has the authority to control the generation, transportation, treatment, storage, and disposal of hazardous waste by large-quantity generators (1,000 kilograms per month or more). Under the RCRA regulations, hazardous wastes must be tracked from the time of generation to the point of disposal. Additionally, all hazardous waste transporters are required to be permitted and must have an identification number. For California, the U.S. EPA has delegated RCRA enforcement to CalEPA, Department of Toxic Substances Control (DTSC).

Superfund Amendments and Reauthorization Act (Public Law 99-499)

CERCLA enlarged and reauthorized the Superfund Amendments and Reauthorization Act of 1986 (Public Law 99-499). The U.S. EPA compiles a list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the U.S. and its territories, known as the National Priorities List (NPL).

Toxic Substance Control Act (15 United States Code Section 2601 et seq.)

The Toxic Substance Control Act (TSCA) of 1976 provides U.S. EPA with authority to require reporting, record-keeping, testing requirements, and restrictions relating to chemical substances and/or mixtures. Certain substances are generally excluded from TSCA, including, among others, food, drugs, cosmetics, and pesticides. TSCA addresses the production, import, use, and disposal of specific chemicals, including polychlorinated biphenyls, asbestos, radon, and lead-based paint. The Frank R. Lautenberg Chemical Safety for the 21st Century Act was implemented on June 22, 2016, as an update to the TSCA.

United States Environmental Protection Agency

U.S. EPA Region 9 oversees federal environmental enforcement in the Pacific Southwest, including California, on issues relating to federal air, water, waste, pesticides, and toxics statutes.

Title IV of TSCA, as well as other regulations and authorities in the Residential Lead-Based Paint Hazard Reduction Act of 1992, directs U.S. EPA to regulate lead-based paint hazards. Under Section 112 of the FCAA, U.S. EPA is responsible for enforcing regulations relating to asbestos and demolition activities. Asbestos is regulated by 40 CFR Part 61, Subpart M – National Emission Standards for Hazardous Air Pollutants. The FCAA allows U.S. EPA to delegate this authority to state and local agencies.

State

CalEPA is responsible for the development, implementation, and enforcement of environmental laws that regulate air, water, and soil quality, pesticide use, and waste recycling and reduction in California. In many cases, the California state statute is more stringent than the federal regulation, and the state of California also regulates some materials that are not regulated by federal statutes. CalEPA and the SWRCB establish rules governing the use of hazardous materials and the management of hazardous waste. Applicable state and local laws include the following:

- Aboveground Petroleum Storage Tank Act
- Asbestos-Containing Material Regulations
- California Accidental Release Prevention Program
- Emergency Response to Hazardous Materials Incidents
- Hazardous Substances Information and Training Act
- Hazardous Waste Control Law
- Hazardous Waste Generator and on-site Hazardous Waste Treatment Programs (i.e., Tiered Permitting)
- Public Safety/Fire Regulations/Building Codes
- Safe Drinking Water and Toxic Enforcement Act
- TSCA
- Underground Storage of Hazardous Substances Act

Within CalEPA, DTSC has primary regulatory responsibility, with delegation of enforcement to local jurisdictions that enter into agreements with the state agency for the management of hazardous materials and the generation, transport, and disposal of hazardous waste under the authority of the Hazardous Waste Control Law.

California Strategic Fire Plan

The State Board of Forestry and Fire Protection prepared the 2018 Strategic Fire Plan with the goal of developing policies and programs that serve the public interest in environmentally, economically, and socially sustainable forest and rangeland management, and establishing a fire protection system that protects and serves the people of California. PRC Sections 4114 and 4130 outline the requirements of the plan (State Board of Forestry and Fire Protection 2018).

Fire Hazard Severity Zones

Government Code 51179, PRC Sections 4202 to 4204, and CCR Section 1280 outline requirements for state and local agencies to classify and map fire hazard severity zones. The California Department of Forestry and Fire Protection Director has authority to classify state responsibility area (SRA) lands for the fire hazard, establish zones reflecting degree of hazard severity, and periodically review and update fire hazard severity zone designations.

State Hazardous Waste Generator/Tiered Permitting Program (California Code of Regulations, Title 22, Division 4.5)

The State Hazardous Waste Generator/Tiered Permitting Program was set up for tracking the waste from cradle to grave. The hazardous waste generator has a responsibility for determining if their waste is hazardous and for the safe handling, transport, and disposal of that waste. Generators who handle hazardous wastes are inspected by the Certified Unified Program Agency for compliance with federal and state hazardous waste storage, and disposal regulations at least once every 3 years.

Unified Program Agencies for Hazardous Materials and Hazardous Waste Management (California Code of Regulations, Title 27, Division 1, Subdivision 4, Chapter 1, Sections 15100-15620)

The Unified Program required the administrative consolidation of six hazardous materials and waste programs (Program Elements) under one agency, a Certified Unified Program Agency. The Program Elements consolidated under the Unified Programs are: Tiered Permitting, Aboveground Petroleum Storage Tank Spill Prevention Control and Countermeasure Plan, Community-Right-To-Know, California Accidental Release Prevention, underground storage tank (UST), and Uniform Fire Code

Plans and Inventory Requirements. The Unified Program is intended to provide relief to businesses complying with the overlapping and sometimes conflicting requirements of formerly independently managed programs.

Regional

Los Angeles County General Plan

The Safety Element of the *Los Angeles County 2035 General Plan* (County of Los Angeles 2015) provides goals, objectives, policies, and programs related to hazards mitigation, emergency response, fire hazards, and disaster recovery. The Safety Element provides specifics as to selected urban rife and secondary hazards, such as oil fields, areas with known shallow methane accumulation, natural gas transmission and distribution lines, and areas with concentrations of post-1946 high-rise buildings (greater than eight stories).

Orange County General Plan

The Safety Element of the *Orange County General Plan* (Orange County 2005) provides goals, objectives, and policies related to hazardous materials, including response to emergency incidents, surveillance of hazardous materials and waste, and providing training to designated personnel. The Safety Element also includes goals, objectives, and policies for fire hazards.

County of Riverside General Plan

The Safety Element of the *County of Riverside General Plan* (County of Riverside 2003) includes goals and policies to reduce impacts of future disasters in the county, including fire hazards. The policies identified in the plan are intended to ensure that land use and siting decisions take hazardous water management and risk reduction into account and that proposed development incorporates fire prevention features.

County of San Bernardino General Plan

The Safety Element of the *County of San Bernardino General Plan* (County of San Bernardino 2014) identifies hazards and hazard abatement provisions to guide local decisions. The plan includes goals and polices to minimize potential risks resulting from exposure of county residents to natural and man-made hazards. The Safety Element establishes a coordinated program to condition development in wildland areas that was adopted through the Fire Safety Overlay provisions of the County Development Code. The Safety Element includes goals and policies to ensure emergency evacuation routes are identified and adequately accessible.

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.

3.11.3 Methods for Evaluating Environmental Effects

The methodology for this evaluation consists of using existing data to identify areas that have documented hazardous wastes, petroleum products, known contamination, or that are within a potential hazard area (e.g., fire severity zone, airport zone) within the Tier 1/Program EIS/EIR Study Area. Utilizing existing data, the potential level of effect is evaluated for each Build Alternative Option.

No comprehensive source of information is available which identifies known or potential sources of environmental contamination. ASTM International (ASTM) Practice E1527-13 (Standard Practice for Environmental Site Assessments) is the accepted industry standard used to evaluate properties for the presence of contamination. U.S. EPA also recognizes the ASTM E1527-13 standard as an adequate investigative process to meet the All Appropriate Inquiry standard for CERCLA liability protections. However, because the methodology used is at the Tier 1/Program-level analysis, the evaluation herein would not meet either the ASTM E 1527-13 protocol or the U.S. EPA All Appropriate Inquiry standard. A detailed evaluation using these protocols and standards would be completed during Tier 2/Project-level NEPA and CEQA analyses.

For this service-level evaluation, the estimated number and distance of state response sites, landfill sites, USTs, and leaking underground storage tanks (LUST) from each Build Alternative Option were compared.

For fire hazard zones, California Department of Forestry and Fire Protection Statewide Fire Hazard Severity Zone Maps for SRA and local responsibility areas (LRA) and SRAs were reviewed and GIS overlays were created. For airports and airport influence areas, data from each county's Airport Land Use Commission (ALUC) mapping was reviewed to create GIS overlays. For educational facilities, publicly available GIS data from each county was reviewed.

Tier 1/Program EIS/EIR Study Area

This service-level evaluation is limited to a desktop evaluation of the data sources described in Section 3.11.3. The Tier 1/Program EIS/EIR Study Area was combined with GIS overlays to identify potential hazards and hazardous materials sites that could be affected by the Program. These potential areas 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 Sources

Online GIS data available from the U.S. EPA (U.S. EPA 2018c), CalEPA (CalEPA 2018), and a variety of other sources were used to identify areas containing potential hazards or hazardous materials within the Tier 1/Program EIS/EIR Study Area. Specifically, the following resources were reviewed:

- **Assessment Cleanup and Redevelopment Exchange System:** Stores information reported by U.E. EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding, as well as information on Targeted Brownfields Assessments performed by U.S. EPA Regions. A listing of Assessment Cleanup and Redevelopment Exchange System Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to U.S. EPA, as well as areas served by Brownfields grant programs.
- **Superfund Enterprise Management System:** Formerly known as Comprehensive Environmental Response, Compensation and Liability Information System, renamed to Superfund Enterprise Management System by the U.S. EPA in 2015, this list contains data on potentially hazardous waste sites that have been reported to the U.S. EPA by states, municipalities, private companies, and private persons, pursuant to Section 103 of the CERCLA.
- **NPL:** Also referred to as Superfund, the NPL is a subset of Comprehensive Environmental Response, Compensation and Liability Information System and identifies over 1,200 sites for priority cleanup under the Superfund Program.
- **RCRA Information System:** RCRA Information System is U.S. EPA's comprehensive information system, providing access to data supporting the RCRA of 1976 and the Hazardous and Solid Waste Amendments of 1984. The database includes selective information on sites which generate, transport, store, treat, and/or dispose of hazardous waste as defined by the RCRA.
- **Toxic Release Inventory:** A federal database that contains detailed information on nearly 650 chemicals and chemical categories that over 1,600 industrial and other facilities in the state manage through disposal or other releases, recycling, energy recovery, or treatment.

- **TSCA:** TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.
- **California Environmental Reporting System:** Developed by CalEPA to support the reporting of information by regulated businesses and Certified Unified Program Agencies pertaining to hazardous materials and hazardous waste throughout the state.
- **EnviroStor:** This system is used by the DTSC to track permitting, enforcement, and cleanup activities at hazardous waste facilities and sites with known or suspected contamination.
- **Geotracker:** Developed for SWRCB, this database contains information about impacted groundwater sites within the state, such as LUST, cleanup sites, and permitted facilities such as landfills and operating UST facilities.
- **California Fire Hazard Severity Zone Viewer.** Database that designates zones (based on factors such as fuel, slope, and fire weather) within an area.

Known sites are a subset of sites of concern that exist along any corridor. All locations of environmental contamination cannot be captured and catalogued by an environmental program.

Related Resources

There are no related resources that would contribute to the assessment of Tier 1/Program EIS/EIR effects on hazards and hazardous materials.

3.11.4 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 of the largest land use category within the Tier 1/Program EIS/EIR Study Area.

Hazardous Waste and Material Sites

Hazardous wastes are defined as any waste product that is considered flammable, corrosive, reactive, or toxic (40 CFR Part 261.3). Hazardous wastes take on many different forms and may

originate from a variety of sources. Common sites associated with contamination include, but are not limited to, gas stations, motor repair facilities, dry cleaners, heavy industry, and railroad corridors.

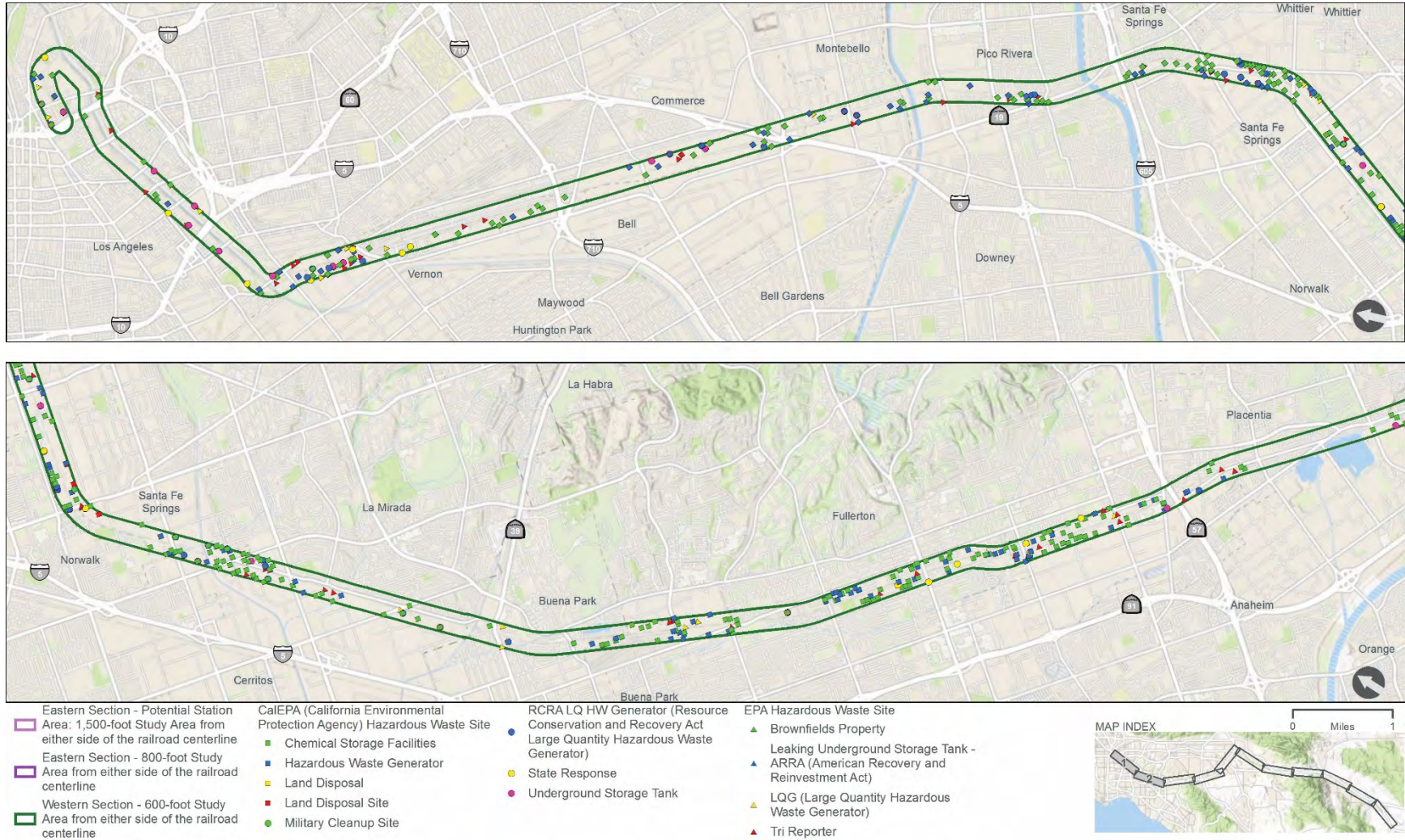
Certain listings relating to hazardous materials and wastes or known contaminated properties are considered to be of greater concern to the Program than other hazardous material sites. In general, Superfund, Brownfields, and LUST listings (in order of magnitude) are more likely to affect the Program, since they often encompass a broad area compared with other listed sites.

Figure 3.11-1 depicts the location of hazardous waste sites (including both federal listings from U.S. EPA and state listings from CalEPA) within the Tier 1/Program EIS/EIR Study Area.

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Figure 3.11-1. Hazardous Waste and Materials Sites within the Tier 1/Program EIS/EIR Study Area

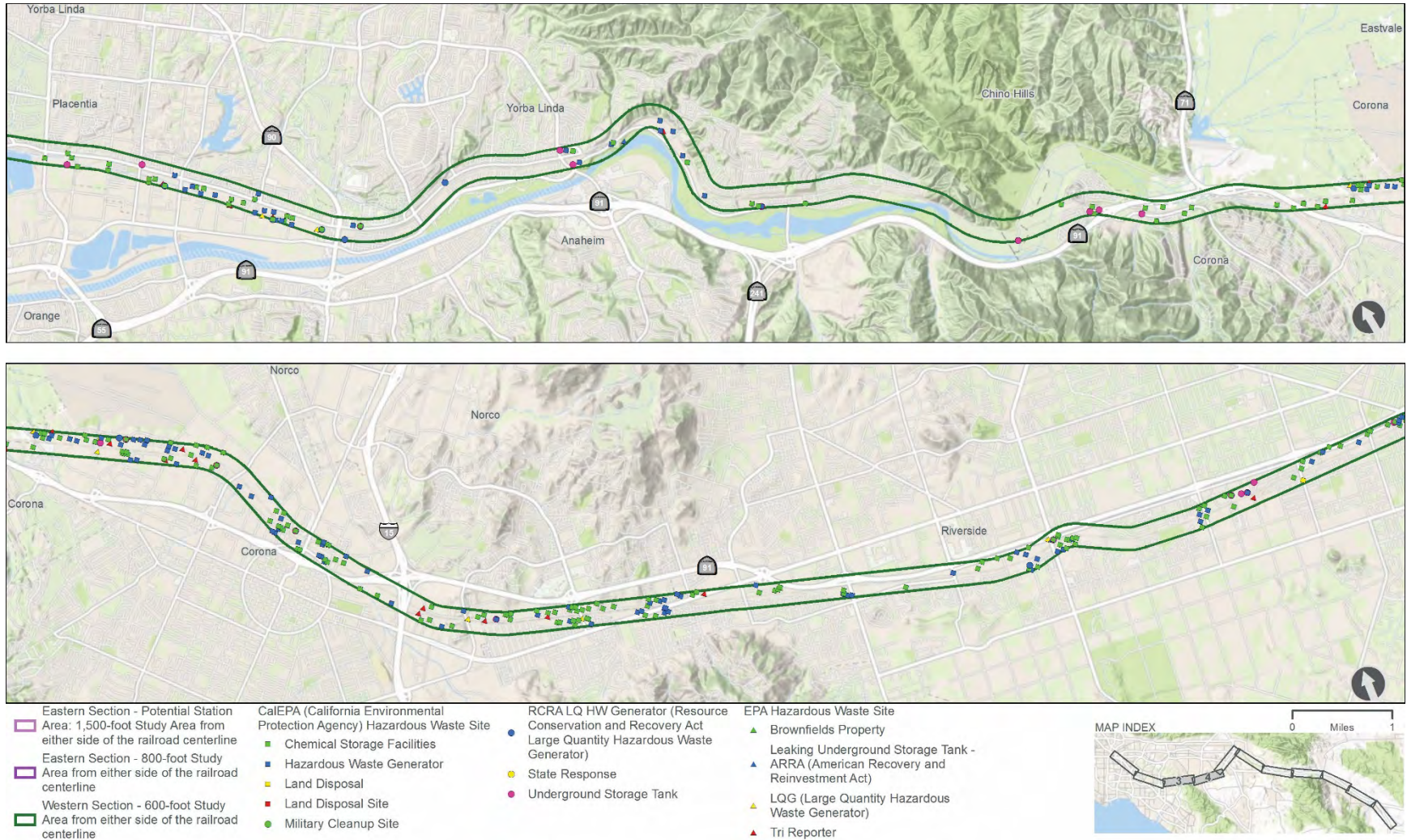
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Figure 3.11-1. Hazardous Waste and Materials Sites within the Tier 1/Program EIS/EIR Study Area

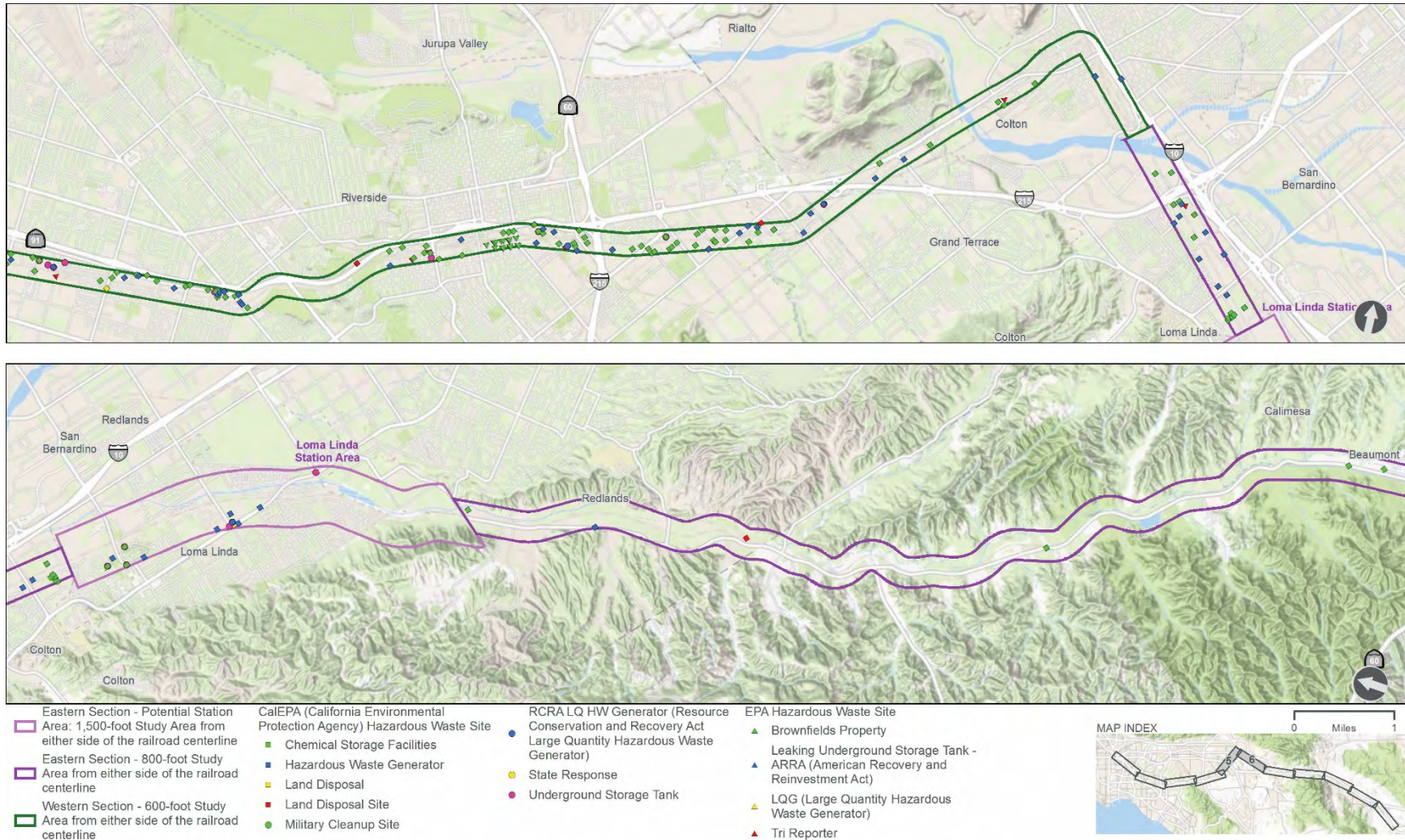
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Figure 3.11-1. Hazardous Waste and Materials Sites within the Tier 1/Program EIS/EIR Study Area

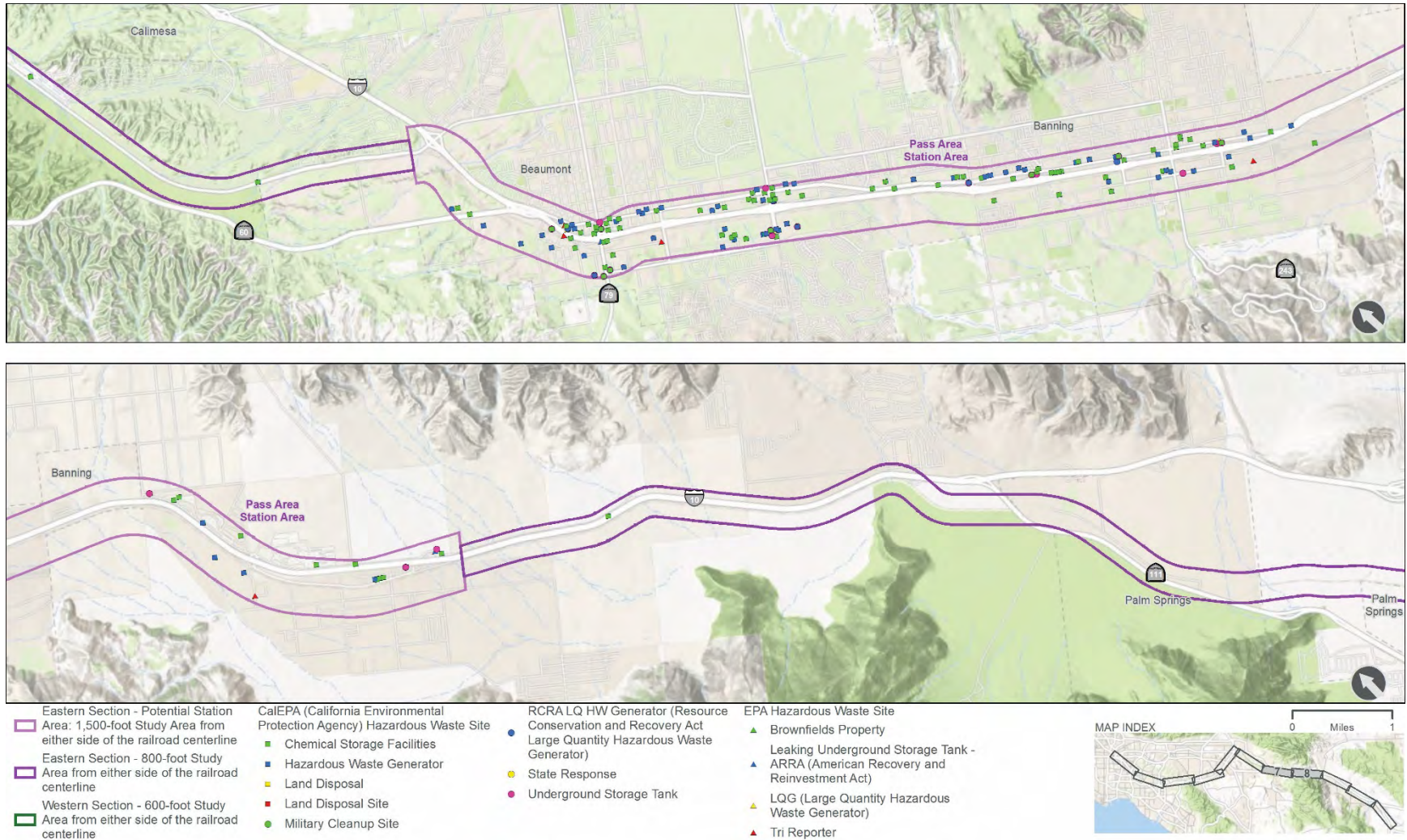
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Figure 3.11-1. Hazardous Waste and Materials Sites within the Tier 1/Program EIS/EIR Study Area

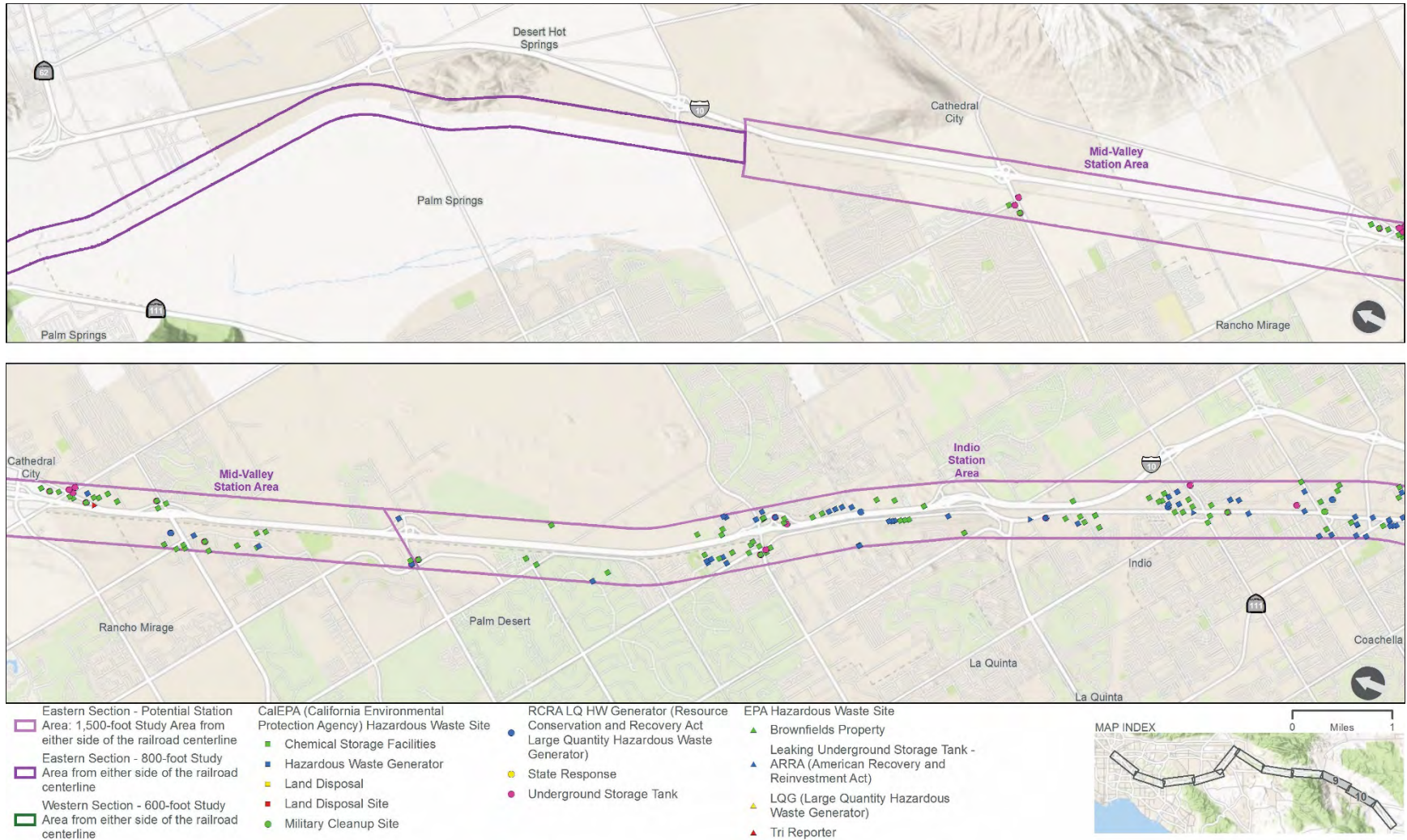
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Figure 3.11-1. Hazardous Waste and Materials Sites within the Tier 1/Program EIS/EIR Study Area

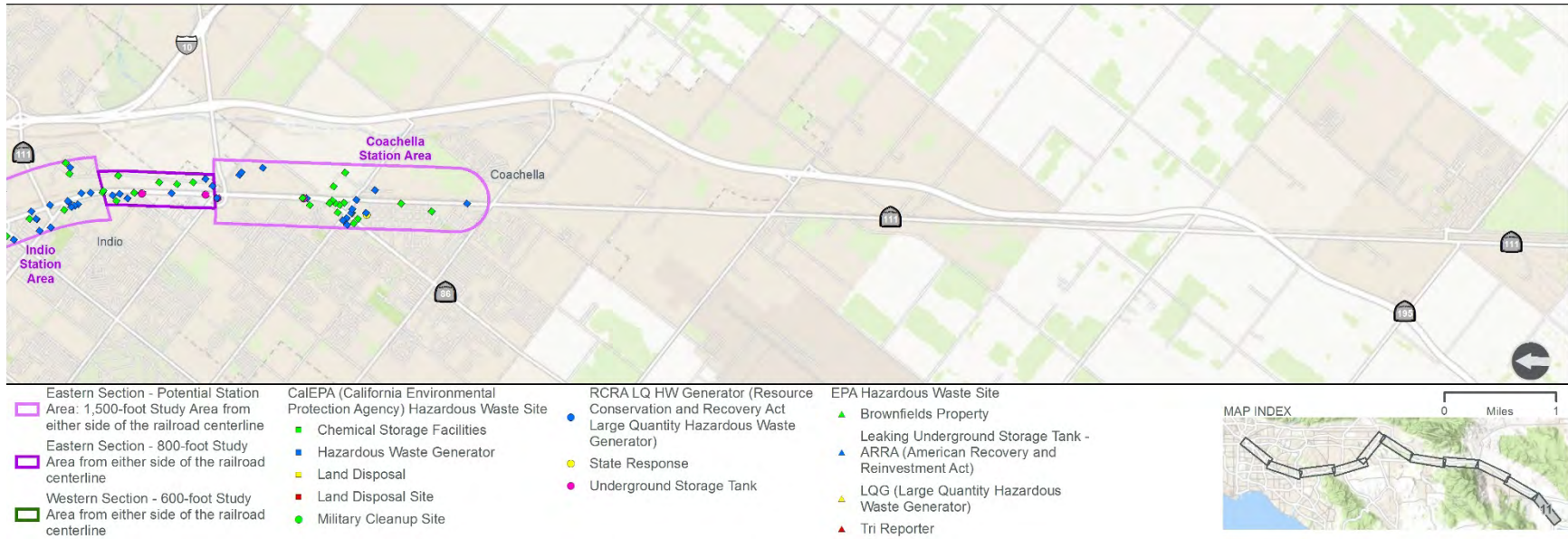
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Figure 3.11-1. Hazardous Waste and Materials Sites within the Tier 1/Program EIS/EIR Study Area

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Build Alternative Option 1 (Coachella Terminus)

Table 3.11-1 provides a summary of sites listed on a hazardous waste or materials regulatory database within Build Alternative Option 1.

Table 3.11-1. Summary of Regulatory Database Listings (Build Alternative Option 1)

Database	Number of Listings Identified (Western Section) ^a	Number of Listings Identified (Eastern Section) ^a	Total Number of Listings ^a
Federal Listings (U.S. EPA)			
NPL (Superfund)	0	0	0
Superfund Enterprise Management System (Comprehensive Environmental Response, Compensation and Liability Information System)	0	0	0
Brownfields	22	0	22
RCRA Large Quantity Generator	53	15	68
Toxic Release Inventory	83	8	91
TSCA	0	0	0
LUST-American Recovery and Reinvestment Act	2	5	7
State Listings (CalEPA)			
State Response (State Superfund Equivalent)	15	1	16
Military Cleanup	0	0	0
Land Disposal Sites	7	1	8
LUST	0	0	0
Chemical Storage Facilities	773	363	1,136
Hazardous Waste Generators	501	284	785

Database	Number of Listings Identified (Western Section) ^a	Number of Listings Identified (Eastern Section) ^a	Total Number of Listings ^a
UST	52	51	103
Large Quantity Generator	36	10	46
Total	1,544	738	2,282

Source: CalEPA 2018; U.S. EPA 2018

Notes:

^a The number of listings does not represent unique properties. Some properties may contain multiple listings in multiple databases.

CalEPA=California Environmental Protection Agency; LUST=leaking underground storage tank; NPL=National Priorities List; RCRA=Resource Conservation and Recovery Act; TSCA=Toxic Substance Control Act; UST=underground storage tank

As summarized in Table 3.11-1, a total of 2,282 regulatory database listings were identified within Build Alternative Option 1. The total number of listings does not represent the number of unique locations, since a single property may have multiple listings in one or more categories. The majority of the listings were sites identified as chemical storage facilities and hazardous waste sites. These sites may or may not be associated with documented contamination, but they all have the potential to affect human health and the environment should a release of substantial quantity occur.

Build Alternative Option 2 (Indio Terminus)

Table 3.11-2 provides a summary of sites listed on a hazardous waste or materials regulatory database within Build Alternative Option 2.

Table 3.11-2. Summary of Regulatory Database Listings (Build Alternative Options 2 and 3)

Database	Number of Listings Identified (Western Section) ^a	Number of Listings Identified (Eastern Section) ^a	Total Number of Listings ^a
<i>Federal Listings (U.S. EPA)</i>			
NPL (Superfund)	0	0	0
Superfund Enterprise Management System (Comprehensive Environmental Response, Compensation and Liability Information System)	0	0	0

Database	Number of Listings Identified (Western Section) ^a	Number of Listings Identified (Eastern Section) ^a	Total Number of Listings ^a
Brownfields	22	0	22
RCRA Large Quantity Generator	53	12	65
Toxic Release Inventory	83	8	91
TSCA	0	0	0
LUST-American Recovery and Reinvestment Act	2	4	6
State Listings (CalEPA)			
State Response (State Superfund Equivalent)	15	0	15
Military Cleanup	0	0	0
Land Disposal Sites	7	1	8
LUST	0	0	0
Chemical Storage Facilities	773	326	1,099
Hazardous Waste Generators	501	251	752
UST	52	47	99
Large Quantity Generator	36	10	46
Total	1,544	659	2,203

Source: CalEPA 2018; U.S. EPA 2018

Notes:

^a The number of listings does not represent unique properties. Some properties may contain multiple listings in multiple databases.

CalEPA=California Environmental Protection Agency; LUST=leaking underground storage tank; NPL=National Priorities List; RCRA=Resource Conservation and Recovery Act; TSCA=Toxic Substance Control Act; UST=underground storage tank

As summarized in Table 3.11-2, a total of 2,203 regulatory database listings were identified within Build Alternative Option 2. Similar to Build Alternative Option 1, the total number of listings does not represent the number of unique locations, since a single property may have multiple listings in one

or more categories. The majority of the listings were sites identified as chemical storage facilities and hazardous waste sites. These sites may or may not be associated with documented contamination, but they all have the potential to affect human health and the environment should a release of substantial quantity occur.

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

Hazardous waste and materials sites within Build Alternative Option 3 are the same as Build Alternative Option 2.

Fire Hazard Severity Zones

California Department of Forestry and Fire Protection uses fire hazard severity zones to classify the anticipated fire-related hazard for SRAs and LRAs. The classifications include Non-Wildland Non-Urban, Moderate, High, and Very High. Fire hazard measurements take into account the following elements: vegetation, topography, weather, crown fire production, and ember production and movement. The very high fire hazard severity designation can be attributed to a variety of factors including highly flammable, dense, drought adapted desert chaparral vegetation, seasonal, strong winds, and a Mediterranean climate that results in vegetation drying during the months most likely to experience Santa Ana winds.

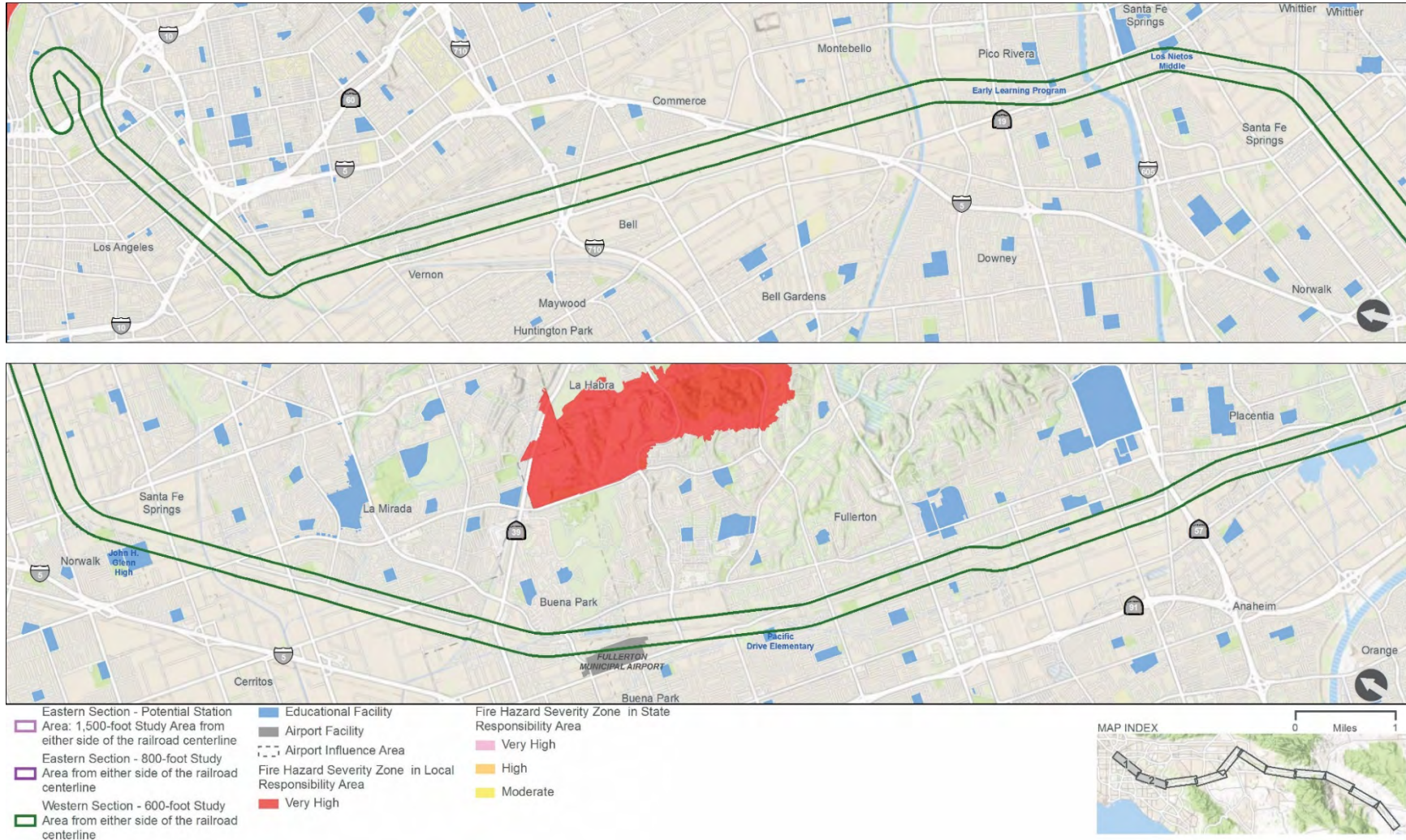
Southern California's climate has a large influence on fire risk as drying vegetation during the summer months becomes fuel available to advancing flames should an ignition be realized. Typically, the highest fire danger is produced by the high-pressure systems that occur in the Great Basin, which result in the Santa Ana winds of Southern California. Sustained wind speeds recorded during recent major fires exceeded 30 mph and may exceed 50 mph during extreme conditions. The Santa Ana wind conditions are a reversal of the prevailing southwesterly winds that usually occur on a region-wide basis during late summer and early fall. Santa Ana winds are warm and dry winds that flow from the higher desert elevations in the north through the mountain passes and canyons. As they converge through the canyons, their velocities increase. Consequently, peak velocities are highest at the mouths of canyons and dissipate as they spread across valley floors. Santa Ana winds generally coincide with the regional drought period and the period of highest fire danger. The Program Corridor is affected by Santa Ana winds. In general, portions of the Program Corridor have terrain that is favorable to wildfire spread, including steep slopes, ravines, mountains, and valleys.

As shown on Figure 3.11-2, the Tier 1/Program EIS/EIR Study Area traverses multiple fire hazard severity zones. Portions of the Western Section of the Program Corridor traverse a Very High Fire Hazard Severity Zone near the Orange County and Riverside County border and in San Bernardino County south of Colton and a Moderate Fire Hazard Severity Zone west of Corona. Portions of the Eastern Section of the Program Corridor traverses a Very High Fire Hazard Severity Zone in San Bernardino County and multiple Very High and Moderate Fire Hazard Severity Zones through the San Gorgonio Pass.

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Figure 3.11-2. Fire Hazard and Airport Zones within the Tier 1/Program EIS/EIR Study Area

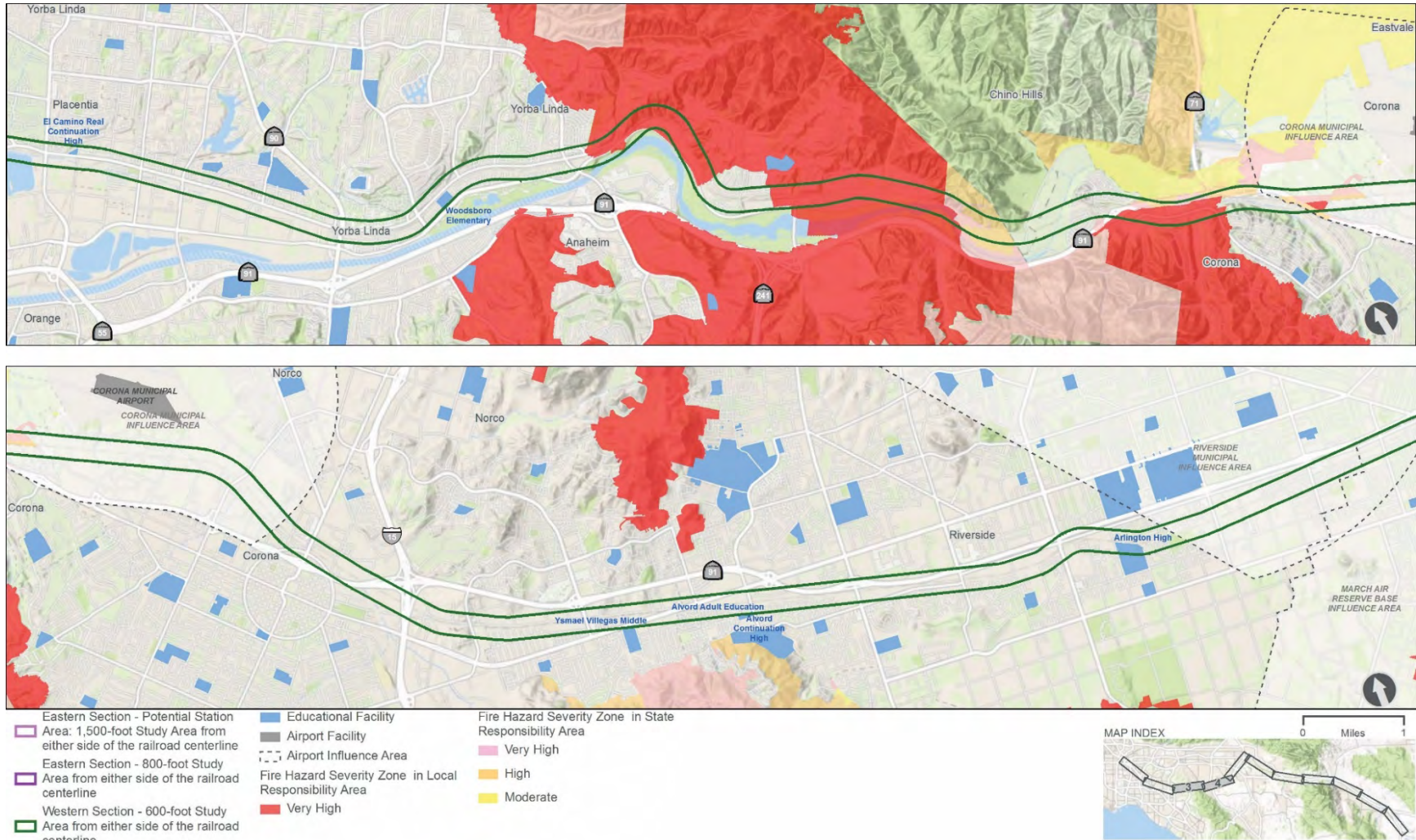
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Figure 3.11-2. Fire Hazard and Airport Zones within the Tier 1/Program EIS/EIR Study Area

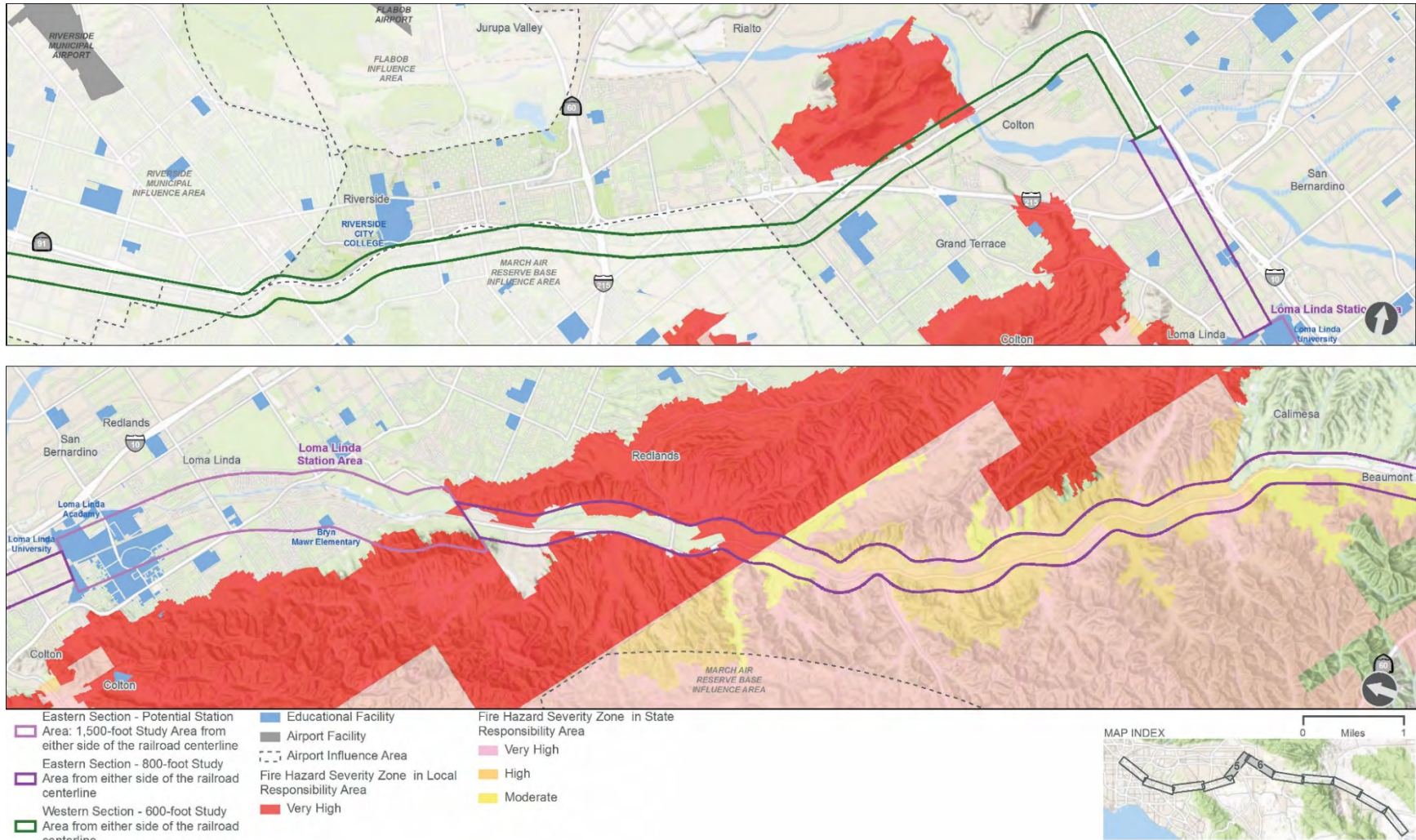
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Figure 3.11-2. Fire Hazard and Airport Zones within the Tier 1/Program EIS/EIR Study Area

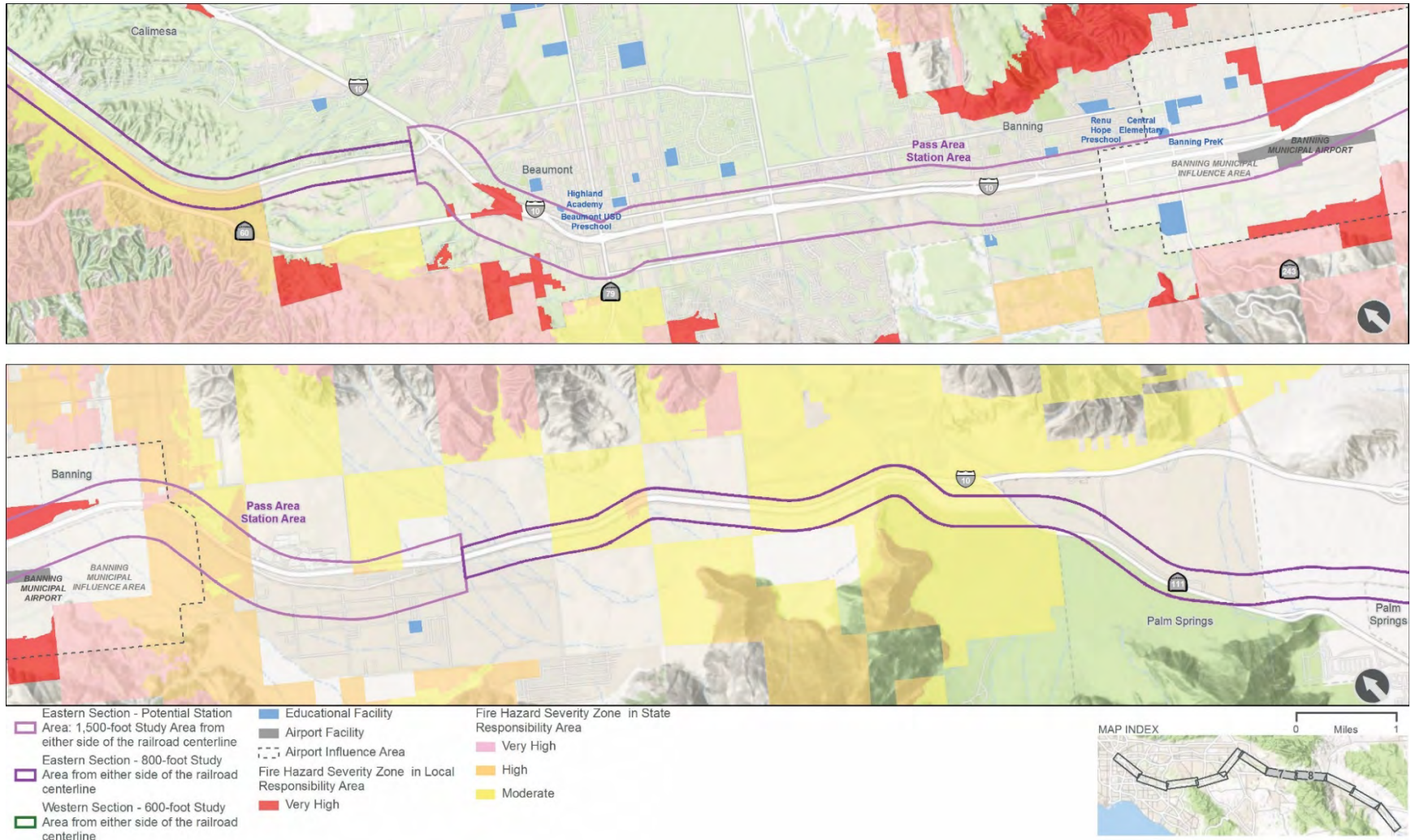
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Figure 3.11-2. Fire Hazard and Airport Zones within the Tier 1/Program EIS/EIR Study Area

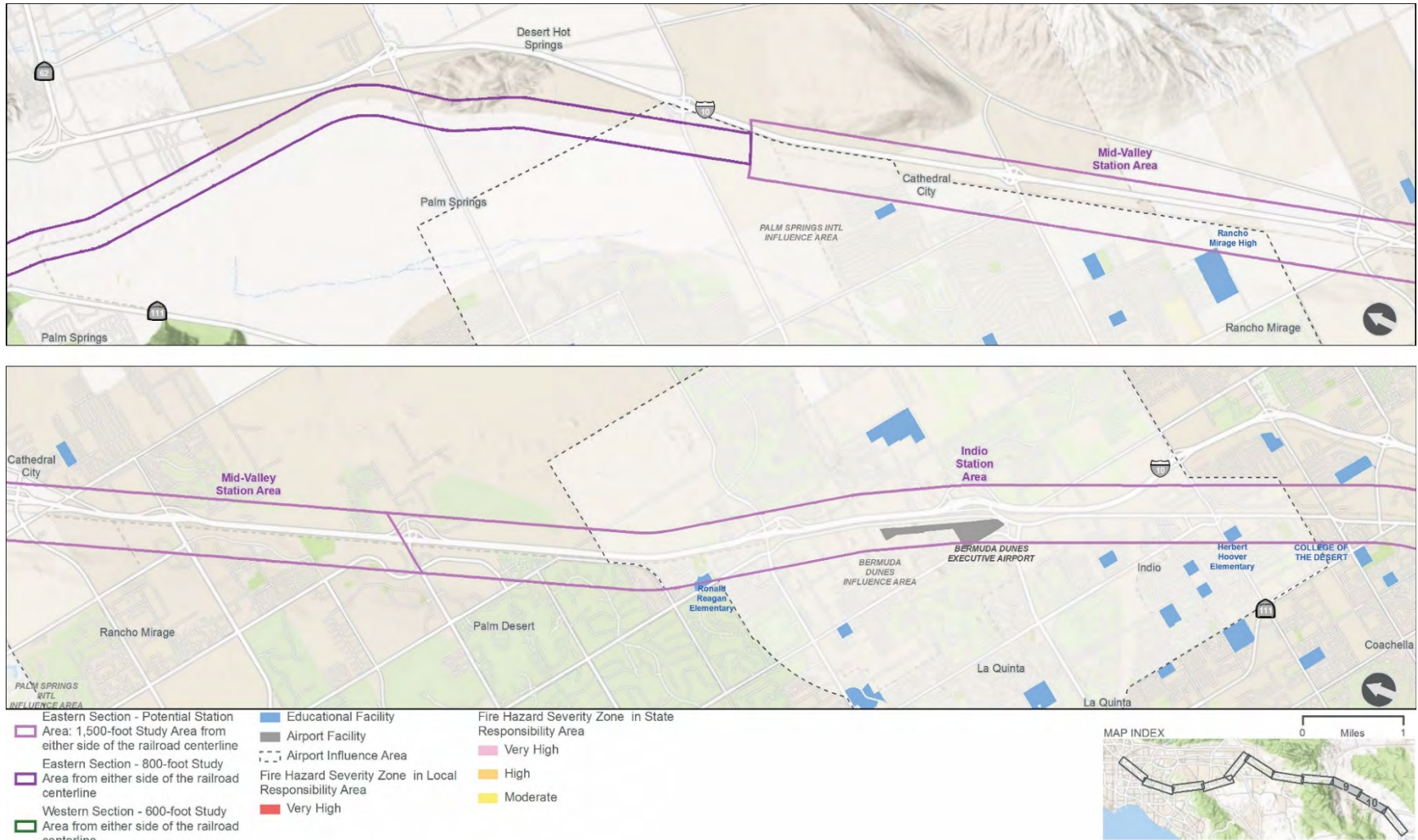
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Figure 3.11-2. Fire Hazard and Airport Zones within the Tier 1/Program EIS/EIR Study Area

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Figure 3.11-2. Fire Hazard and Airport Zones within the Tier 1/Program EIS/EIR Study Area

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Build Alternative Option 1 (Coachella Terminus)

There are limited areas within the Western Section of Build Alternative Option 1 that are mapped as being within a fire hazard severity zone. Of the land mapped as being within a fire hazard severity zone, the largest is mapped as SRA High (114.0 acres). Other land mapped as SRA Very High and LRA Very High are also present within the Western Section. For the Eastern Section of Build Alternative Option 1, the largest type of fire hazard severity mapped land is mapped as SRA High (1,256.6 acres). Similar to the Western Section, other land mapped as SRA Very High, SRA Moderate, and LRA Very High are also present within the Eastern Section. Table 3.11-3 provides a summary of fire hazard severity zones within Build Alternative Option 1.

Table 3.11-3. Summary of Fire Hazard Severity Zones (Build Alternative Options 1, 2, and 3)

Fire Hazard Severity Zone	Area of Zone within Western Section (acres)	Area of Zone within Eastern Section (acres)	Total Area of Zone (acres)
SRA – Very High	75.7	306.9	382.6
SRA – High	114.0	1,256.6	1,370.6
SRA – Moderate	0.0	1,151.7	1,151.7
LRA – Very High	617.1	562.7	1,179.8

Source: California Department of Forestry and Fire Protection 2012

Notes:

LRA=local responsibility area; SRA=state responsibility area

Build Alternative Option 2 (Indio Terminus)

Fire hazard severity zones within Build Alternative Option 2 are the same as Build Alternative Option 1.

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

Fire hazard severity zones within Build Alternative Option 3 are the same as Build Alternative Option 1.

Airports and Airport Influence Areas

Within California, airport land use compatibility is coordinated by an ALUC. ALUCs protect public health, safety, and welfare by ensuring the orderly expansion of airports and the adoption of land

use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports. An Airport Land Use Compatibility Plan (ALUCP) is the basis for compatible planning within the vicinity of a public airport. The ALUCP may include land use measures specifying land use, height restrictions, and building standards. The planning boundary of the ALUCP is the airport influence area and is established by the ALUC after consultation with the involved agencies. Involved agencies are primarily the cities and the county, but also include special districts, school districts, and community college districts. An ALUCP must also address any military airport within the jurisdiction of the ALUC.

The Program Corridor crosses four counties, Los Angeles, Orange, San Bernardino, and Riverside, with each county having an ALUC that establishes land use, noise, and safety policies for projects in the vicinity of public airports, including compatibility criteria and maps for the influence areas of individual airports.

Build Alternative Option 1 (Coachella Terminus)

As shown on Figure 3.11-2, portions of the Western Section under Build Alternative Option 1 are located within 3 airport facility influence areas and adjacent to 1 airport facility:

- Fullerton Municipal Airport
- Corona Municipal Airport Influence Area
- Riverside Municipal Airport Influence Area
- March Air Reserve Base Airport Influence Area

As shown on Figure 3.11-2, portions of the Eastern Section under Build Alternative Option 1 are located within 4 airport facility influence areas and adjacent to 2 airport facilities:

- Banning Municipal Airport and Banning Municipal Airport Influence Area
- Palm Springs International Airport Influence Area
- Bermuda Dunes Executive Airport and Bermuda Dunes Executive Airport Influence Area
- Jacqueline Cochran Regional Airport Influence Area

Build Alternative Option 2 (Indio Terminus)

Airports and airport influence areas for the Western Section within Build Alternative Option 2 are the same as Build Alternative Option 1. As shown on Figure 3.11-2, portions of the Eastern Section under Build Alternative Option 2 are located within three airport facility influence areas and adjacent to two airport facilities:

- Banning Municipal Airport and Banning Municipal Airport Influence Area
- Palm Springs International Airport Influence Area
- Bermuda Dunes Executive Airport and Bermuda Dunes Executive Airport Influence Area

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

Airports and airport influence areas within Build Alternative Option 3 are the same as Build Alternative Option 2.

Educational Facilities

School locations are important to consider because individuals particularly sensitive to hazardous materials exposure use these facilities. Additional protective regulations apply to projects that could use or disturb potentially hazardous products near or at schools. The California Public Resources Code requires projects that might reasonably be expected to emit or handle hazardous materials within 0.25 mile of a school to discuss potential effects with the applicable school district.

Figure 3.11-2 shows existing educational facilities (defined as colleges, high schools, middle schools, elementary schools, preschools, or nursery schools) within the Tier 1/Program EIS/EIR Study Area.

Build Alternative Option 1 (Coachella Terminus)

Table 3.11-4 provides a summary of education facilities within Build Alternative Option 1.

Table 3.11-4. Summary of School Facilities (Build Alternative Option 1)

Educational Facility	Number of Facilities (Western Section)	Number of Facilities (Eastern Section)	Total Number of Education Facilities
Preschool/Nursery School	1	1	2
Elementary School	2	6	8
Middle School	2	1	3

Educational Facility	Number of Facilities (Western Section)	Number of Facilities (Eastern Section)	Total Number of Education Facilities
High School	3	1	4
College/University	1	2	3
Other (Adult Education)	3	3	6

Build Alternative Option 2 (Indio Terminus)

Table 3.11-5 provides a summary of education facilities within Build Alternative Option 2 and 3.

Table 3.11-5. Summary of School Facilities (Build Alternative Options 2 and 3)

Educational Facility	Number of Facilities (Western Section)	Number of Facilities (Eastern Section)	Total Number of Education Facilities
Preschool/Nursery School	1	1	2
Elementary School	2	4	6
Middle School	2	0	2
High School	3	1	4
College/University	1	2	3
Other (Adult Education)	3	3	6

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

School facilities located within Build Alternative Option 3 are the same as Build Alternative Option 2.

3.11.5 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 related to hazards and hazardous materials would be anticipated as a result of constructing any of the Build Alternative Options.

Most effects related to hazards and hazardous materials would occur during construction when the ground is disturbed and when there could be temporary disturbance of hazardous materials.

Operation or long-term effects would include the additional hazardous waste, contaminated materials, and solid waste that are generated by the operation of the Program, including from hazardous wastes handled at existing maintenance facilities as a part of routine operation and maintenance of passenger trains, and from minor spills and releases of non-acutely hazardous waste.

No Build Alternative

The No Build Alternative, as described in Chapter 2, Program Alternatives, of this Tier 1/Program EIS/EIR, is used as the baseline for comparison. The No Build Alternative would not implement the Program of rail improvements associated with this service-level evaluation. Because no physical changes would occur, no effects related to hazards and hazardous materials and wildfire conditions are anticipated under the No Build Alternative.

Build Alternative Options 1, 2, and 3

Hazardous Materials Sites and Hazardous Materials Effects

CONSTRUCTION

Western Section. The Build Alternative Options would not require construction of additional rail or station infrastructure in the Western Section of the Program Corridor because the existing railroad and stations from LAUS to Colton would be used. When compared with the No Build Alternative, short-term/temporary effects associated with the handling of potential hazardous materials would be negligible because no additional construction activities are planned within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. A total of 51 UST and 2 American Recovery and Reinvestment Act database listings have been identified within the Eastern Section of Build Alternative Option 1. A total of 47 UST and 2 American Recovery and Reinvestment Act database listings have been identified within the Eastern Section of Build Alternative Option 2 and 3. Construction activities under the Build Alternative Options involving excavation increase the likelihood for encountering existing and unknown regulated materials. Hazardous material sites pose a safety risk to workers who might be exposed to contaminated soil, water, and vapors. In addition, vehicles and equipment used during construction activities, such as fuel storage tanks, have the potential to release hazardous materials (mainly petroleum products) and increase material spills. There is also the potential for an increase in hazardous conditions through the movement or dispersion of hazardous materials on site during construction.

Although construction activities could increase the potential for use, release, and exposure to hazardous materials or hazardous conditions, appropriate construction safety procedures and equipment stockpiling methods would be used to minimize the potential for unintended releases with all releases reported and addressed under appropriate regulatory guidance. Should contamination be encountered, construction activities would be temporarily halted until characterization, storage, disposal, and cleanup requirements are met.

If a passenger rail system is constructed and operated within the existing rail ROW, no ROW acquisitions would be required. However, the Tier 1/Program EIS/EIR Study Area allows for infrastructure and station facilities to be located beyond the limits of the existing rail ROW, which would require acquisition of land that is identified on a hazardous waste and materials regulatory database and be potentially contaminated. Which properties would be affected by the future construction and operation of a passenger rail system, and to what extent, cannot be determined at this time.

Therefore, this Tier 1/Program EIS/EIR evaluation does not identify the nature and severity of contamination at specific sites because the sites for where infrastructure and station improvements would be constructed have not yet been selected. The Tier 2/Project-level analysis would evaluate site specific impacts associated with hazardous waste and material sites, and whether disposal or transportation of these hazardous materials would result in effects on the public. When compared with the No Build Alternative, Build Alternative Option 1 could have a moderate effect on hazardous waste and materials sites 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 would 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 would be 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 corridor between Los Angeles and Coachella. Any hazardous wastes produced by operation of the Build Alternative Options in the Western Section of the Program Corridor would be handled at existing maintenance facilities as a part of routine operation and maintenance of passenger trains. Minor spills and releases of non-acutely hazardous

waste (i.e., petroleum, oil, and lubricants) may also occur due to normal operation along the tracks and at existing stations or maintenance facilities. While petroleum, oils, and lubricants may be used in rail operations or maintenance, proper use, storage, and disposal practices would minimize the potential for accidental releases.

Hazardous material sites would have minimal effect on the operations of a passenger rail system. Work within contaminated areas seldom goes beyond maintenance activities, which would be unlikely to increase workers' exposure to contaminants. 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.

Eastern Section. Operational effects associated with hazardous waste and materials sites for the Build Alternative Options within the Eastern Section would be the same as those identified for the Western Section of the Program Corridor. Effects associated with the Eastern Section of the Program Corridor under Build Alternative Options 1, 2, and 3 would be negligible when compared with the No Build Alternative.

Fire Hazard Area 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, fire hazard area effects would be negligible within the Western Section under Build Alternative Option 1, 2, and 3.

Eastern Section. Construction of Build Alternative Option 1, 2, or 3 in the Eastern Section of the Program Corridor would require the construction of rail stations, reconfiguration of existing or creation of new rail facilities, and potential ROW acquisition. Construction activities located within a SRA or LRA Fire Hazard Severity Zones under any of the Build Alternative Options have an increased risk of causing a wildfire due to increased human activity and ignition sources, including construction equipment that could create spark, be a source of heat, or leak flammable materials within an area.

If a passenger rail system is constructed and operated within the existing rail ROW, no ROW acquisitions would be required. However, the Tier 1/Program EIS/EIR Study Area allows for infrastructure and station facilities to be located beyond the limits of the existing rail ROW, which would require acquisition of land that is identified in a SRA or LRA Fire Hazard Severity Zone. While

applicable fire codes and design features for fire suppression would be developed, potential effects depend on where the infrastructure improvements, including new stations, would be located, which have not yet been selected. Which properties would be affected by the future construction and operation of a passenger rail system, and to what extent, cannot be determined at this time. The Tier 2/Project-level analysis would evaluate the exacerbation of fire risk and whether people or structures are exposed to increased fire hazard risk.

When compared with the No Build Alternative, Build Alternative Option 1 could have a moderate effect associated with fire severity zones within the Eastern Section of the Program Corridor. When compared with Build Alternative Option 1, Build Alternative Options 2 and 3 would have the same magnitude of effects and would be considered moderate when compared with the No Build Alternative.

OPERATION

Western Section. Operation of Build Alternative Option 1, 2, or 3 within the Western Section would not result in new effects associated with fire hazard zones as the additional train trips would travel within an existing railroad ROW. When compared with the No Build Alternative, effects associated with fire hazard zones would be negligible because no additional infrastructure improvements are planned within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Once construction ceases, operation of the new railroad infrastructure and stations under the Build Alternative Options would not be anticipated to result in changes associated with fire severity hazard zones. Operational effects associated with the Eastern Section of Build Alternative Option 1 would be negligible when compared with the No Build Alternative. When compared with Build Alternative Option 1, Build Alternative Options 2 and 3 would have the same magnitude of effect and would be considered negligible when compared with the No Build Alternative.

Airport and Airport Influence Area 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 airport facilities or airport influence areas would be negligible within the Western Section under Build Alternatives Option 1, 2, and 3.

Eastern Section. Within the Eastern Section of the Program Corridor, Build Alternative Option 1 would include the construction of infrastructure improvements, such as sidings, additional main line track, wayside signals, drainage, grade-separation structures, and stations, to accommodate the proposed service. The majority of construction activities would occur within or directly adjacent to the existing railroad ROW. However, the construction of up to five new potential stations would require acquisition of parcels within local communities adjacent to the railroad ROW.

For Build Alternative Option 1, portions of the Pass Area Station Area, Mid-Valley Station Area, Indio Station Area, and Coachella Station Area are located adjacent to existing airport facilities or are within an airport influence area. Depending on where infrastructure or stations are sited within these station areas, land use compatibility, infrastructure/station design, and construction activities would be defined by the applicable ALUCP standards and regulations. When compared with the No Build Alternative, Build Alternative Option 1 effects associated with airport facilities and airport influence would be moderate. When compared with Build Alternative Option 1, Build Alternative Option 2 would have slightly reduced construction effects due to a shorter route alignment and reduced station options (i.e., one less station area [Coachella Station Area]) within an airport influence area). However, the magnitude of effects would be similar and would 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 would be considered moderate when compared with the No Build Alternative. Site-specific land use compatibility effects, along with measures to minimize potential disruption to, and land use compatibility effects on adjacent airport facilities and airport influence areas would be considered during the Tier 2/Project-level analysis.

OPERATION

Western Section. Operation of Build Alternative Option 1, 2, or 3 within the Western Section would not result in effects on airport facilities or airport influence areas as the additional train trips would travel within an existing railroad ROW. When compared with the No Build Alternative, effects on airport facilities or airport influence areas would be negligible because no additional infrastructure improvements are planned within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Once construction ceases, operation of the new railroad infrastructure and stations under the Build Alternative Options would not be anticipated to result in changes associated with airport facilities or airport influence areas. Operational effects associated with the Eastern Section of Build Alternative Option 1 would be negligible when compared with the No Build Alternative. When compared with Build Alternative Option 1, Build Alternative Options 2 and 3 would have the same

magnitude of effect and would be considered negligible when compared with the No Build Alternative.

3.11.6 NEPA Summary of Potential Effects

Table 3.11-6 through Table 3.11-7 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 types of resources that may be affected and, more importantly, the relative magnitude of the effect.

For hazards and hazardous materials, the level of intensity for effects is based on the types and number of sites potentially affected and that most effects related to hazards and hazardous materials can be mitigated through preparation of a phase I environmental site assessment, phase II site investigation, a hazardous materials management program, soil management plan, a health and safety plan, and a fire control and emergency response plan. Specific mitigation measures to reduce effects would be analyzed during the Tier 2/Project-level environmental process.

Table 3.11-6. NEPA Summary of Effects on Hazardous Wastes and Material Sites

Alternative Options	Total Number of NPL Sites	Total Number of State Response Sites	Total Number of Landfill Sites	Total Number of UST and LUST Sites	Potential Intensity of Effect: Western Section	Potential Intensity of Effect: Eastern Section
No Build Alternative ^a	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Construction: None Operation: None	Construction: None Operation: None
Build Alternative Option 1 (Coachella Terminus)	0	16	8	110	Construction: Negligible Operation: Negligible	Construction: Moderate Operation: Negligible
Build Alternative Option 2 (Indio Terminus)	0	15	8	105	Construction: Negligible Operation: Negligible	Construction: Moderate Operation: Negligible
Build Alternative Option 3 (Indio Terminus with limited third track)	0	15	8	105	Construction: Negligible Operation: Negligible	Construction: Moderate Operation: Negligible

Notes:

^a The No Build Alternative, as identified, includes existing and potential expansion of roadway, passenger rail, and air travel facilities within the Tier 1/Program EIS/EIR Study Area; however, for the service-level evaluation, identifying levels of effect from potential expansion of those facilities is speculative and would be dependent on Tier 2/Project-level analysis.

LUST=leaking underground storage tank; NPL=National Priorities List; UST=underground storage tank

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Table 3.11-7. NEPA Summary of Effects on Fire Hazard Zones

Alternative Options	Potential Intensity of Effect: Western Section	Potential Intensity of Effect: Eastern Section
No Build Alternative ^a	Construction: None Operation: None	Construction: None Operation: None
Build Alternative Option 1 (Coachella Terminus)	Construction: Negligible Operation: Negligible	Construction: Moderate Operation: Negligible
Build Alternative Option 2 (Indio Terminus)	Construction: Negligible Operation: Negligible	Construction: Moderate Operation: Negligible
Build Alternative Option 3 (Indio Terminus with limited third track)	Construction: Negligible Operation: Negligible	Construction: Moderate Operation: Negligible

Notes:

- ^a The No Build Alternative, as identified, includes existing and potential expansion of roadway, passenger rail, and air travel facilities within the Tier 1/Program EIS/EIR Study Area; however, for the service-level evaluation, identifying levels of effect from potential expansion of those facilities is speculative and would be dependent on Tier 2/Project-level analysis.

Table 3.11-8. NEPA Summary of Effects on Airport Areas

Alternative Options	Potential Intensity of Effect: Western Section	Potential Intensity of Effect: Eastern Section
No Build Alternative ^a	Construction: None Operation: None	Construction: None Operation: None
Build Alternative Option 1 (Coachella Terminus)	Construction: Negligible Operation: Negligible	Construction: Moderate Operation: Negligible
Build Alternative Option 2 (Indio Terminus)	Construction: Negligible Operation: Negligible	Construction: Moderate Operation: Negligible

Alternative Options	Potential Intensity of Effect: Western Section	Potential Intensity of Effect: Eastern Section
Build Alternative Option 3 (Indio Terminus with limited third track)	Construction: Negligible Operation: Negligible	Construction: Moderate Operation: Negligible

Notes:

- ^a The No Build Alternative, as identified, includes existing and potential expansion of roadway, passenger rail, and air travel facilities within the Tier 1/Program EIS/EIR Study Area; however, for the service-level evaluation, identifying levels of effect from potential expansion of those facilities is speculative and would be dependent on Tier 2/Project-level analysis.

3.11.7 CEQA Summary of Potential Impacts

Based on the information provided in Sections 3.11.4 and 3.11.5, and considering the CEQA Guidelines Appendix G Checklist questions for hazards and hazardous materials and wildfire, the Build Alternative Options would have potentially substantial impacts on hazards and hazardous materials and wildfire when reviewed on a Program-wide basis. Placing the infrastructure improvements and new stations largely within or along the existing ROW reduces the potential for substantial impacts associated with hazard and wildfire areas of concern. However, because the sites have not been selected, some areas that may contain hazardous materials and hazards may be substantially impacted. At the Tier 1/Program analysis level, it would not be possible to precisely know the location, extent, and particular characteristics of impacts on these areas. Proposed programmatic mitigation strategies discussed in Section 3.11.8 would be applied to reduce potential impacts.

Table 3.11-9 summarizes the CEQA significance conclusions for the Build Alternative Options, the proposed programmatic mitigation strategies that could be applied to minimize, reduce, or avoid the potential impacts, and the significance determination after mitigation strategies are applied. The identification and implementation of additional site-specific mitigation measures necessary for Project implementation would occur as part of the Tier 2/Project-level analysis.

Table 3.11-9. CEQA Summary of Impacts for Hazards and Hazardous Materials and Wildfires

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<i>Would the Program create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?</i>		
<i>Construction</i>		
<p>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 or routine transport, use, or disposal of hazardous materials are proposed or required within the Western Section.</p>	Not applicable	Not applicable
<p>Eastern Section – Potentially Significant. Potential construction impacts related to the transport, use, or disposal of hazardous materials are dependent on the location of rail infrastructure improvements and station facilities, which are currently unknown. Construction activities could result in the temporary disturbance of hazardous materials sites, including sites with known soil or groundwater contamination, which would require cleanup and disposal of those materials. Due to the variety of potential construction techniques and numerous hazardous materials sites in the Tier 1/Program EIS/EIR Study Area, there is the potential for impacts under Build Alternative Option 1, 2, or 3. The Tier 2/Project-level analysis would identify and mitigate impacts regarding transport, use, or disposal of hazardous materials during construction activities.</p>	<p>HAZ-1 HAZ-2 HAZ-3</p>	<p>Less than Significant. HAZ-1 through HAZ-3 would minimize, reduce or avoid potential impacts related to the transport, use, or disposal of hazardous materials during construction by requiring further evaluation into hazardous materials in the area, preparation of a Project-specific hazardous materials management program and a health and safety plan, and by ensuring compliance with all applicable local, state, and federal regulations regarding hazardous materials during the Tier 2/Project-level analysis.</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Operation		
<p>Western Section – Less Than Significant. The change 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 hazards to the public or the environment. A less than significant impact is anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	Not applicable	Not applicable
<p>Eastern Section – Potentially Significant. Potential operational impacts related to the transport, use, or disposal of hazardous materials depend on the location of new rail infrastructure improvements and station facilities, which are currently unknown. Some operational impacts could result in the generation of additional hazardous waste, contaminated materials, and solid waste, which would be handled by new maintenance facilities within the Eastern Section of the Program Corridor. Operations could also result in minor spills and releases of non-acutely hazardous waste. There is the potential for impacts under Build Alternative Option 1, 2, or 3. The Tier 2/Project-level analysis would identify and mitigate impacts related to the transport, use, or disposal of hazardous materials during operational activities.</p>	HAZ-2	<p>Less than Significant. HAZ-2 would minimize, reduce or, avoid potential impacts related to the transport, use, or disposal of hazardous materials during operational activities by preparation of Project-specific hazardous materials management program during Tier 2/Project-level analysis.</p>
<p><i>Would the Program create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment?</i></p>		
Construction		
<p>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.</p>	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Potentially Significant. Potential construction impacts are dependent on the location of rail infrastructure improvements and station facilities, which are currently unknown. Construction activities could result in the temporary disturbance of hazardous materials sites, including sites with known soil or groundwater contamination, which could release these materials into the environment. Due to the variety of potential construction techniques and numerous hazardous materials sites in the Tier 1/Program EIS/EIR Study Area, there is the potential for impacts under Build Alternative Option 1, 2, or 3. Some cleanup of UST and LUST sites may be needed, which would require transportation or disposal of hazardous materials and potentially lead to upset and accident conditions related to accidental releases. The Tier 2/Project-level analysis would identify and mitigate impacts related to the release of hazardous materials into the environment.</p>	<p>HAZ-1 HAZ-2 HAZ-3</p>	<p>Less than Significant. HAZ-1 through HAZ-3 would minimize, reduce or, avoid potential impacts resulting from the accidental release of hazardous materials into the environment during construction by requiring further evaluation into hazardous materials in the area, preparation of a Project-specific hazardous materials management program and a health and safety plan, and by ensuring compliance with all applicable local, state, and federal regulations regarding hazardous materials during the Tier 2/Project-level analysis.</p>
Operation		
<p>Western Section – Less Than Significant. The change in train service (two additional round-trip daily trains within the Program Corridor) would not change existing land use and would not include changes that would result in new hazards to the public or the environment. A less than significant impact is anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Potentially Significant. Any hazardous wastes produced by operation of Build Alternative Option 1, 2, or 3 in the Eastern Section of the Program Corridor would be handled at new maintenance facilities as a part of routine operation and maintenance of passenger trains. Minor spills and releases of non-acutely hazardous waste (i.e., petroleum, oil, and lubricants) may also occur due to normal operation along the tracks and at stations or maintenance facilities; therefore, there is the potential for impacts under Build Alternative Option 1, 2, or 3.</p>	<p>HAZ-2</p>	<p>Less than Significant. HAZ-2 would minimize, reduce or, avoid potential impacts related to hazards resulting from the release of hazardous materials into the environment during operational activities by preparation of a Project-specific hazardous materials management program and a health and safety plan during Tier 2/Project-level analysis.</p>
<p><i>Would the Program emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?</i></p>		
<p><i>Construction</i></p>		
<p>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.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – Potentially Significant. Potential construction impacts related to the handling of hazardous materials or generation of hazardous emissions within 0.25 mile of an existing or proposed school are dependent on the location of rail infrastructure improvements and station facilities, which are currently unknown. Due to the variety of potential construction techniques and numerous hazardous materials sites in the Tier 1/Program EIS/EIR Study Area, site-specific impacts and associated measures to existing school facilities cannot be determined at this time. The Tier 2/Project-level analysis would identify and mitigate impacts related to hazardous emissions or the handling of hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school.</p>	<p>HAZ-2 LU-3</p>	<p>Less than Significant. HAZ-2 and LU-3 would minimize, reduce or, avoid potential impacts from conflicts with potentially affected school facilities through design and further analysis during the Tier 2/Project-level environmental process.</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Operation		
<p>Western Section – Less Than Significant. Although there are schools that are located within 0.25 mile of the Western Section of the Program Corridor, the change 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 hazards to the public or the environment. A less than significant impact under Build Alternative Option 1, 2, or 3 is anticipated at the Tier 1/Program EIS/EIR evaluation level.</p>	Not applicable	Not applicable
<p>Eastern Section – Potentially Significant. Potential operational impacts related to hazardous emissions or handling of hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school depend on the location of infrastructure improvements and station locations, which are currently unknown. Some operational impacts could result in the generation of additional hazardous waste, contaminated materials, and solid waste, which would be handled at maintenance facilities. Operations could also result in minor spills and releases of non-acutely hazardous waste. The Tier 2/Project-level analysis would identify and mitigate impacts related to hazardous emissions or handling of hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school.</p>	HAZ-2 LU-3	<p>Less than Significant. HAZ-2 and LU-3 would minimize, reduce or, avoid potential impacts from conflicts with potentially affected school facilities through design and further analysis during the Tier 2/Project-level environmental process.</p>
<p><i>Would the Program be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?</i></p>		
Construction		
<p>Western Section – No Impact. Although the Western Section of the Program Corridor contains sites included on a list of hazardous materials sites, no construction impacts are anticipated under Build Alternative Option 1, 2, or 3 at the Tier 1/Program EIS/EIR evaluation level because no physical improvements are proposed or required within the Western Section.</p>	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Potentially Significant. Hazardous waste and materials sites have been identified within the Eastern Section of the Program Corridor under Build Alternative 1, 2, and 3. Hazardous waste and material sites pose a safety risk to workers who might be exposed to contaminated soil, water, and vapors. Construction activities involving excavation increase the likelihood for encountering existing and unknown regulated materials. In addition, vehicles and equipment used during construction activities, such as fuel storage tanks, have the potential to release hazardous materials (mainly petroleum products) and have the potential to increase of material spills. Potential impacts associated with hazardous waste and material sites are dependent on the location of rail infrastructure improvements and station facilities, which are currently unknown. The Tier 2/Project-level analysis would identify and analyze site-specific impacts associated with hazardous waste and material sites.</p>	<p>HAZ-1 HAZ-2 HAZ-3</p>	<p>Less than Significant. HAZ-1 through HAZ-3 would minimize, reduce or, avoid potential impacts related to construction on a site included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 by requiring further evaluation (e.g., Phase I environmental assessment, Phase II site assessment) into hazardous materials on the site, preparation of a Project-specific hazardous materials management program and a health and safety plan, and by ensuring compliance with all applicable local, state, and federal regulations regarding hazardous materials during the Tier 2/Project-level analysis.</p>
Operation		
<p>Western Section – Less Than Significant. The Western Section of the Program Corridor contains sites included on a list of hazardous materials sites. However, the change 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 hazards to the public or the environment. A less than significant impact is anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Less Than Significant. Hazardous material sites would have minimal impact on the operations of a passenger rail system. Work within contaminated areas seldom goes beyond maintenance activities, which would be unlikely to increase workers’ exposure to contaminants. Once the Program is operational, the sites included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 would not be anticipated to be significantly disturbed and, therefore, would not require additional remediation or coordination with governing agencies. A less than significant impact is anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	Not applicable	Not applicable
<p><i>Would the Program be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport? Would the Program result in a safety hazard or excessive noise for people residing or working in the project area?</i></p>		
<p><i>Construction</i></p>		
<p>Western Section – No Impact. Although the Western Section of the Program Corridor contains areas that are located within an airport land use plan, 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.</p>	Not applicable	Not applicable
<p>Eastern Section – Potentially Significant. Potential impacts associated with consistency with airport land use compatibility plans depend on the location of rail infrastructure improvements, station facilities, and type of construction activities, which are currently unknown. Portions the Eastern Section of the Program Corridor are located within the Banning Municipal Airport, Bermuda Dunes Executive Airport, Palm Springs International Airport, and Jacqueline Cochran Regional Airport Influence Areas. A detailed analysis of the airport land use compatibility plans for these airports cannot be considered at the Tier 1/Program EIS/EIR level as the locations of infrastructure and station facilities is unknown. The Tier 2/Project-level analysis would identify conflicts with these airport land use compatibility plans.</p>	LU-3	<p>Less than Significant. LU-3 would minimize, reduce or, avoid potential impacts from conflicts with applicable airport land use consistency plans and policies through design and further analysis.</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Operation		
<p>Western Section – Less Than Significant. The Western Section of the Program Corridor contains areas that are located within an airport land use plan. However, the change 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 safety hazards or excessive noise for people residing or working in the area. A less than significant impact is anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	Not applicable	Not applicable
<p>Eastern Section – Potentially Significant. Potential operational impacts associated with consistency with airport land use compatibility plans depend on the location of rail infrastructure improvements and station facilities, which are currently unknown. Portions the Eastern Section of the Program Corridor are located within the Banning Municipal Airport, Bermuda Dunes Executive Airport, Palm Springs International Airport, and Jacqueline Cochran Regional Airport Influence Areas. A detailed analysis of the airport land use compatibility plans for these airports cannot be considered at the Tier 1/Program EIS/EIR level as the locations of infrastructure and station facilities is unknown. The Tier 2/Project-level analysis would identify conflicts with these airport land use compatibility plans.</p>	LU-3	<p>Less than Significant. LU-3 would minimize, reduce or, avoid potential impacts from conflicts with applicable airport land use consistency plans and policies through design and further analysis.</p>
<p><i>Would the Program impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?</i></p>		
Construction		
<p>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.</p>	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Potentially Significant. Potential construction impacts that could impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan are dependent on the location of rail infrastructure improvements and station facilities, which are currently unknown. The Tier 2/Project-level analysis would identify and mitigate impacts on implementation of applicable emergency response and evacuation plans.</p>	<p>HAZ-4 LU-2 LU-3</p>	<p>Less than Significant. HAZ-4, LU-2, and LU-3 would minimize, reduce, or avoid potential impacts from interfering with an adopted emergency response plan by requiring coordination with emergency providers through design and analysis.</p>
Operation		
<p>Western Section – Less Than Significant. The change in train service (two additional round-trip daily trains within the Program Corridor) would not change existing land use and would not substantially impair an adopted emergency response plan or emergency evacuation plan. A less than significant impact is anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – Less than Significant. Once construction ceases, operation of the new railroad infrastructure and stations under Build Alternative Option 1, 2, or 3 would not be anticipated to result in changes that would conflict or interfere with applicable emergency response plans or emergency evacuation plans. A less than significant impact is anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p><i>Would the Program expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?</i></p>		
Construction		
<p>Western Section – No Impact. No construction impacts under are anticipated at the Tier 1/Program EIS/EIR evaluation level Build Alternative Option 1, 2, or 3 because no physical improvements are proposed or required within the Western Section.</p>	<p>Not applicable</p>	<p>Not applicable</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Potentially Significant. Potential construction impacts resulting from wildland fires are dependent on the location of rail infrastructure improvements and station facilities, which are currently unknown. For construction activities that would occur in high or very high fire hazard severity zones, there is an increased risk of wildfire impacts due to increased human activity and ignition sources, including construction equipment that could create spark, be a source of heat, or leak flammable materials within an area. The Tier 2/Project-level analysis would evaluate the potential of fire risk and whether people or structures would be exposed to significant fire risk during construction activities.</p>	<p>HAZ-4</p>	<p>Less than Significant. HAZ-4 would minimize, reduce, or avoid potential impacts on people and structures resulting from wildland fires by preparation of a Project-specific fire control and emergency response plan during the Tier 2/Project-level analysis.</p>
<p>Operation</p>		
<p>Western Section – No Impact. The change in train service (two additional round-trip daily trains within the Program Corridor) would not change existing land use that would result in an exacerbation of wildfire risks or hazards. Therefore, no operational impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – Potentially Significant. Once construction ceases, operation of the new railroad infrastructure and stations under the Build Alternative Options would not be anticipated to result in changes associated with fire severity hazard zones. However, the operation of new station facilities within fire severity zones could result in an increased wildfire risk to people or structures in the area; therefore there is potential for significant impacts under Build Alternative Option 1, 2, or 3. The Tier 2/Project-level analysis would evaluate the potential for people or structures to be exposed to wildfire risk during operations.</p>	<p>HAZ-4</p>	<p>Less than Significant. HAZ-4 would minimize, reduce, or avoid potential impacts on people and structures resulting from wildland fires by preparation of a Project-specific fire control and emergency response plan and traffic management plan during the Tier 2/Project-level analysis.</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<i>If located in or near state responsibility areas or lands classified as very high fire severity zones, would the Program substantially impair an adopted emergency response plan or emergency evacuation plan?</i>		
<i>Construction</i>		
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 that could impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan are dependent on the location of rail infrastructure improvements and station facilities, which are currently unknown. The Tier 2/Project-level analysis would identify and mitigate impacts on implementation of applicable emergency response and evacuation plans.	HAZ-4 LU-2 LU-3	Less than Significant. HAZ-4, LU-2, and LU-3 would minimize, reduce, or avoid potential impacts from interfering with an adopted emergency response plan by requiring coordination with emergency providers through Tier 2/Project-level design and analysis.
<i>Operation</i>		
Western Section – Less Than Significant. The change in train service (two additional round-trip daily trains within the Program Corridor) would not change existing land use and would not substantially impair an adopted emergency response plan or emergency evacuation plan. 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. Once construction ceases, operation of the new railroad infrastructure and stations under Build Alternative Option 1, 2, or 3 would not be anticipated to result in changes that would conflict or interfere with applicable emergency response plans or emergency evacuation plans. 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
<i>If located in or near state responsibility areas or lands classified as very high fire severity zones, would the Program, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?</i>		
<i>Construction</i>		
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 resulting from wildland fires are dependent on the location of rail infrastructure improvements and station facilities, which are currently unknown. For construction activities that would occur in high or very high fire hazard severity zones, there is an increased risk of wildfire impacts due to increased human activity and ignition sources, including construction equipment that could create spark, be a source of heat, or leak flammable materials within an area. The Tier 2/Project-level analysis would evaluate the potential of fire risk and whether people or structures would be exposed to significant fire risk during construction activities.	HAZ-4	Less than Significant. HAZ-4 would minimize, reduce, or avoid potential impacts on people and structures resulting from wildland fires by preparation of a Project-specific fire control and emergency response plan during the Tier 2/Project-level analysis.
<i>Operation</i>		
Western Section – No Impact. The change in train service (two additional round-trip daily trains within the Program Corridor) would not change existing land use and would not result in an exacerbation of wildfire risks or hazards. Therefore, no operational impacts under Build Alternative Option 1, 2, or 3 are anticipated at the Tier 1/Program EIS/EIR evaluation level.	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Potentially Significant. Once construction ceases, operation of the new railroad infrastructure and stations under the Build Alternative Options would not be anticipated to result in changes associated with fire severity hazard zones. However, the operation of new station facilities within fire severity zones could result in an increased wildfire risk to people or structures in the area; therefore there is potential for significant impacts under Build Alternative Option 1, 2, or 3. The Tier 2/Project-level analysis would evaluate the potential for people or structures to be exposed to wildfire risk during operations.</p>	HAZ-4	<p>Less than Significant. HAZ-4 would minimize, reduce, or avoid potential impacts on people and structures resulting from wildland fires by preparation of a Project-specific fire control and emergency response plan and traffic management plan during the Tier 2/Project-level analysis.</p>
<p><i>If located in or near state responsibility areas or lands classified as very high fire severity zones, would the Program require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?:</i></p>		
<p>Construction</p>		
<p>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.</p>	Not applicable	Not applicable
<p>Eastern Section – Potentially Significant. Potential construction impacts resulting from wildland fires are dependent on the location of rail infrastructure improvements and station facilities, which are currently unknown. For construction activities that would occur in high or very high fire hazard severity zones, there is an increased risk of wildfire impacts due to increased human activity and ignition sources, including construction equipment that could create spark, be a source of heat, or leak flammable materials within an area; therefore there is potential for significant impacts under Build Alternative Option 1, 2, or 3. The Tier 2/Project-level analysis would evaluate the potential of fire risk and whether construction activities would have fire risks to the environment.</p>	HAZ-4	<p>Less than Significant. HAZ-4 would minimize, reduce, or avoid potential impacts on people and structures resulting from wildland fires by preparation of a Project-specific fire control and emergency response plan during the Tier 2/Project-level analysis.</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Operation		
<p>Western Section – Less Than Significant. The change in train service (two additional round-trip daily trains within the Program Corridor) on an existing rail corridor would require maintenance of existing infrastructure. However, with adherence to existing developed maintenance plans and procedures, maintenance activities on the existing rail corridor would not exacerbate fire risk within the area. 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.</p>	Not applicable	Not applicable
<p>Eastern Section – Potentially Significant. Operation of the Program under Build Alternative Option 1, 2, or 3 would require continual maintenance of rail infrastructure and station facilities that could be located in fire hazard severity zones. Potential operational impacts resulting from wildland fires are dependent on the location of rail infrastructure improvements and station facilities, which are currently unknown. The Tier 2/Project-level analysis would identify and mitigate impacts related to the maintenance of associated infrastructure that may exacerbate fire risk or that may result in temporary or ongoing impacts on the environment during construction.</p>	HAZ-4	<p>Less than Significant. HAZ-4 would minimize, reduce, or avoid potential impacts on people and structures resulting from wildland fires by preparation of a Project-specific fire control and emergency response plan during the Tier 2/Project-level analysis.</p>
<p><i>If located in or near state responsibility areas or lands classified as very high fire severity zones, would the Program expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?</i></p>		
Construction		
<p>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.</p>	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Potentially Significant. For construction activities that would occur in high or very high fire hazard severity zones, there is an increased risk of wildfire impacts due to increased human activity and ignition sources, including construction equipment that could create spark, be a source of heat, or leak flammable materials within an area. The Tier 2/Project-level analysis would evaluate the potential of fire risk and whether construction activities could result in downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.</p>	<p>HAZ-4</p>	<p>Less than Significant. HAZ-4 would minimize, reduce, or avoid potential impacts on people and structures resulting from wildland fires by preparation of a Project-specific fire control and emergency response plan during the Tier 2/Project-level analysis.</p>
<p>Operation</p>		
<p>Western Section – No Impact. The change in train service (two additional round-trip daily trains within the Program Corridor) would not change existing land use that would result in exposure of people or structures to new flooding, landslide, or fire hazards as a result of runoff, post-fire slope instability, or drainage changes. Therefore, no operational impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – Less than Significant. Ongoing operations are not expected to expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. 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.</p>	<p>Not applicable</p>	<p>Not applicable</p>

Notes:

EIS/EIR=environmental impact statement/environmental impact report; LUST=leaking underground storage tank; ROW=right-of-way; UST=underground storage tank

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3.11.8 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. Potential site-specific mitigation measures associated with areas found to be contaminated would be developed in consultation with the appropriate agencies with jurisdiction over the property or cleanup efforts.

Programmatic mitigation strategies include design considerations for either avoidance of contaminated properties or minimization of soil disturbance in contaminated areas. Where contaminated materials cannot be avoided, proper characterization and disposal of contaminated materials under applicable rules and regulations would occur. Proposed programmatic mitigation strategies include, but are not limited to, the following:

Mitigation Strategy HAZ-1: During Tier 2/Project-level analysis, a Phase I Environmental Site Assessment shall be conducted to determine the significance of impacts on hazardous waste or materials sites due to the siting of specific rail infrastructure or station facility proposed. The site-specific Phase I Environmental Site Assessment shall adhere to ASTM-conforming requirements and include recommendations on if a subsequent Phase II Site Investigation is required for the selected site. The Phase I Environmental Site Assessment shall also include a discussion of observed and/or suspected asbestos-containing materials, potential lead-based paint, and other materials falling under the Universal Waste requirements within the selected site.

Mitigation Strategy HAZ-2: During Tier 2/Project-level analysis, a site-specific hazardous materials management program shall be prepared for the specific rail infrastructure or station facilities proposed. The hazardous materials management program shall provide for safe storage, containment, and disposal of chemicals and hazardous materials related to Project construction and operation, including the proper disposal of waste materials. The hazardous materials management program shall include, but should not be limited to, the following:

- A description of hazardous materials and hazardous wastes used (29 Code of Federal Regulations 1910.1200)
- A description of handling, transport, treatment, and disposal procedures, as relevant for each hazardous material or hazardous waste (29 Code of Federal Regulations 1910.120)
- Preparedness, prevention, contingency, and emergency procedures, including emergency contact information (29 Code of Federal Regulations 1910.38)

- A description of personnel training including, but not limited to: (1) recognition of existing or potential hazards resulting from accidental spills or other releases; (2) implementation of evacuation, notification, and other emergency response procedures; (3) management, awareness, and handling of hazardous materials and hazardous wastes, as required by their level of responsibility (29 Code of Federal Regulations 1910)
- Instructions on keeping Safety Data Sheets for each on-site hazardous chemical (29 Code of Federal Regulations 1910.1200)
- Identification of the locations of hazardous material storage areas, including temporary storage areas, which shall be equipped with secondary containment sufficient in size to contain the volume of the largest container or tank (29 Code of Federal Regulations 1910.120)

Mitigation Strategy HAZ-3: During Tier 2/Project-level analysis, sites identified for the specific rail infrastructure or station facility proposed shall be screened by the identified lead agency or agencies to determine if land use restrictions or activity use limitations are present. If the site contains land use restrictions or activity use limitations that would be affected by the Project, coordination with the governing agency (Department of Toxic Substance Control or Regional Water Quality Control Board) shall be required. Such coordination shall consist of notifying the local enforcement branch of the agencies that work is planned for a restricted property. Notification typically results in a meeting with regulators that would determine the requirements for the property during the Project. A soil management plan and a health and safety plan are typically required to be completed, reviewed, and approved in writing by the governing agency (Department of Toxic Substance Control or Regional Water Quality Control Board). These requirements, and any additional requirements, shall be determined in coordination with the applicable regulatory agencies.

Mitigation Strategy HAZ-4: During Tier 2/Project-level analysis, a Project-specific Fire Control and Emergency Response Plan shall be prepared in coordination with local fire departments for the sites identified for the specific rail infrastructure or station facility proposed. The plan shall describe fire prevention and response practices that shall be implemented during construction and operation to minimize the risk of fire and, in the case of fire, provide for immediate fire suppression and notification.

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 identified 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

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 resources 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.

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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.

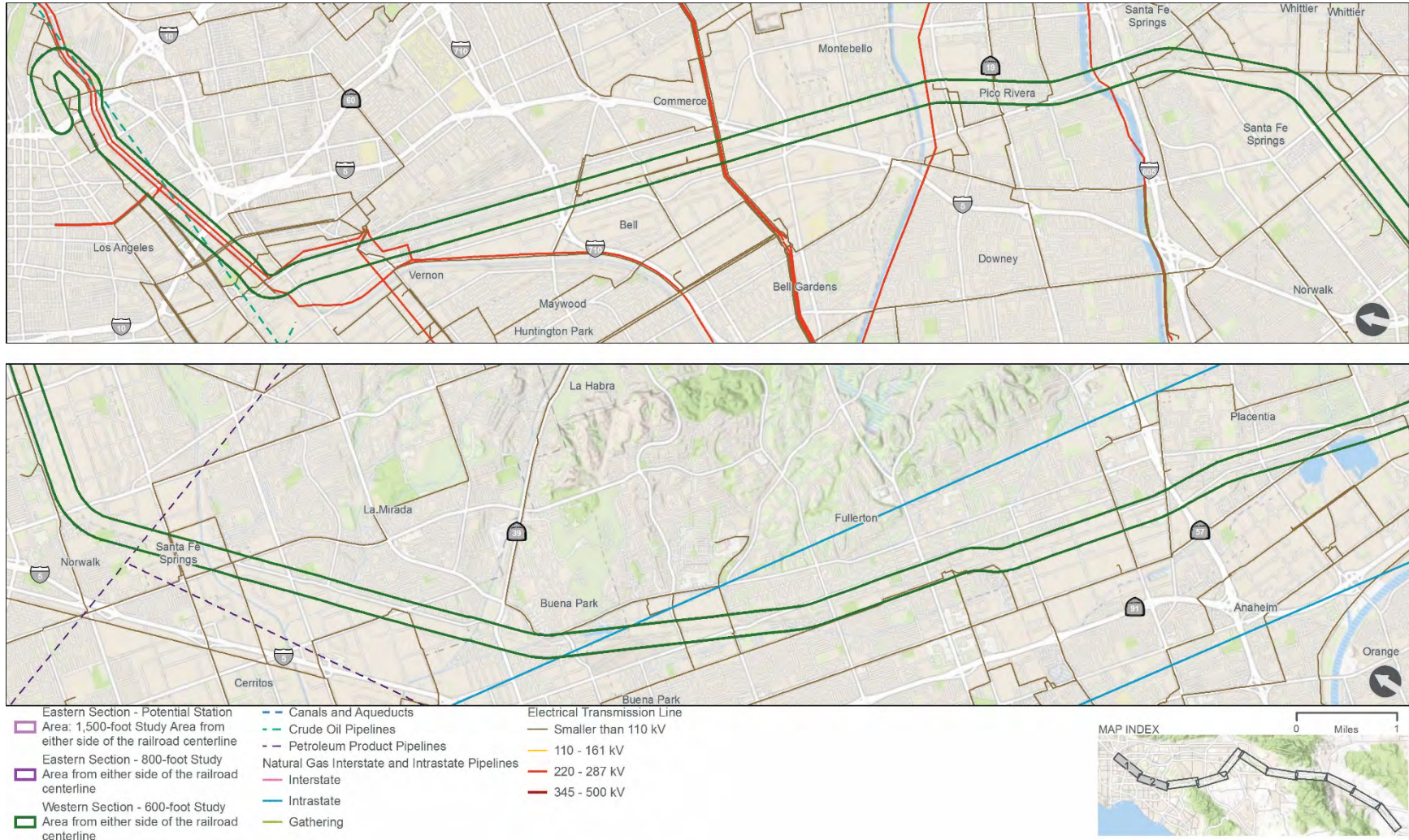
Domestic water within the Tier 1/Program EIS/EIR Study Area is provided by various sources, including municipal water departments, local water districts and water agencies, and private water companies. Imported water is primarily purchased from the Metropolitan Water District of Southern California and 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.

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

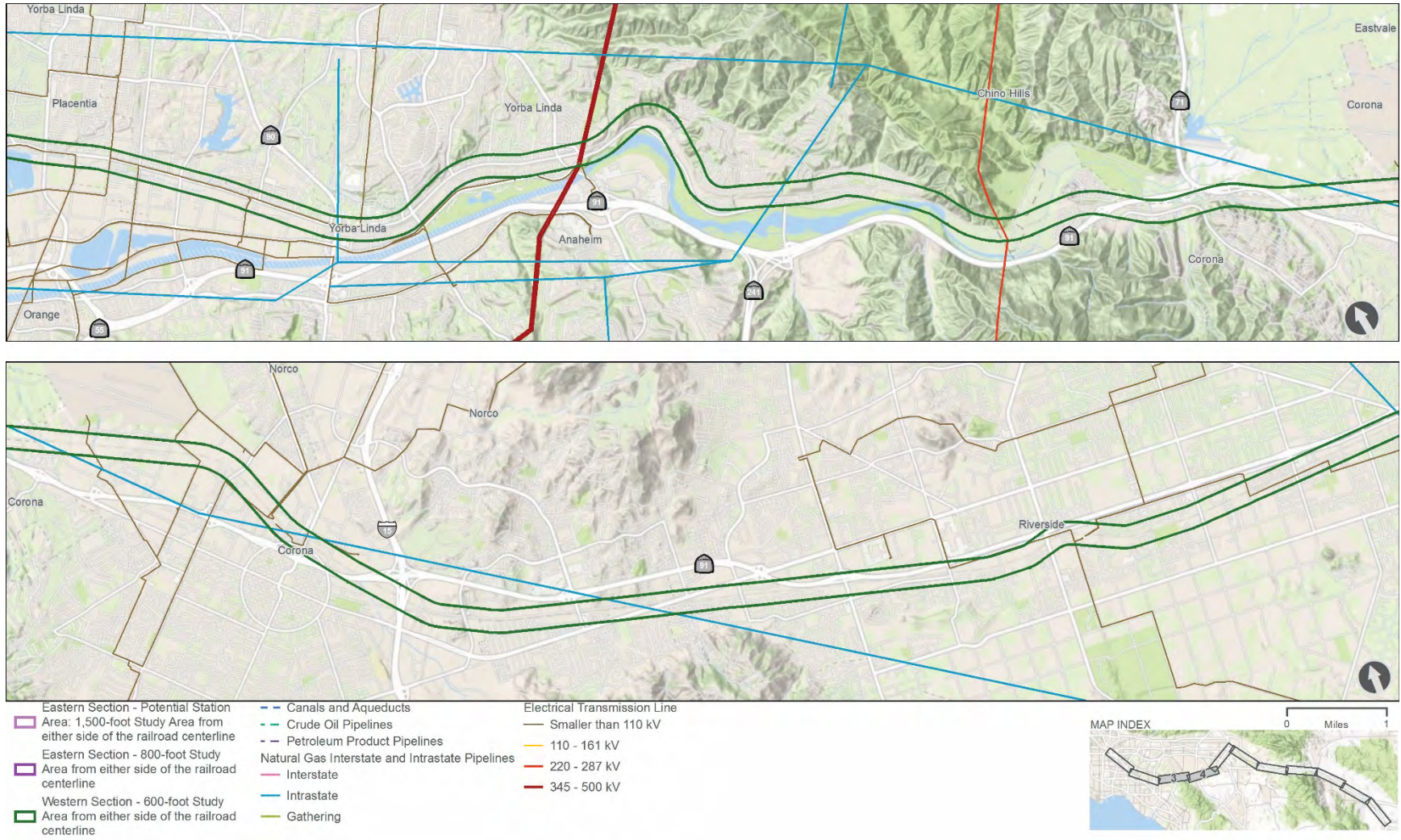
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Figure 3.12-1. Known Utilities within the Tier 1/Program EIS/EIR Study Area

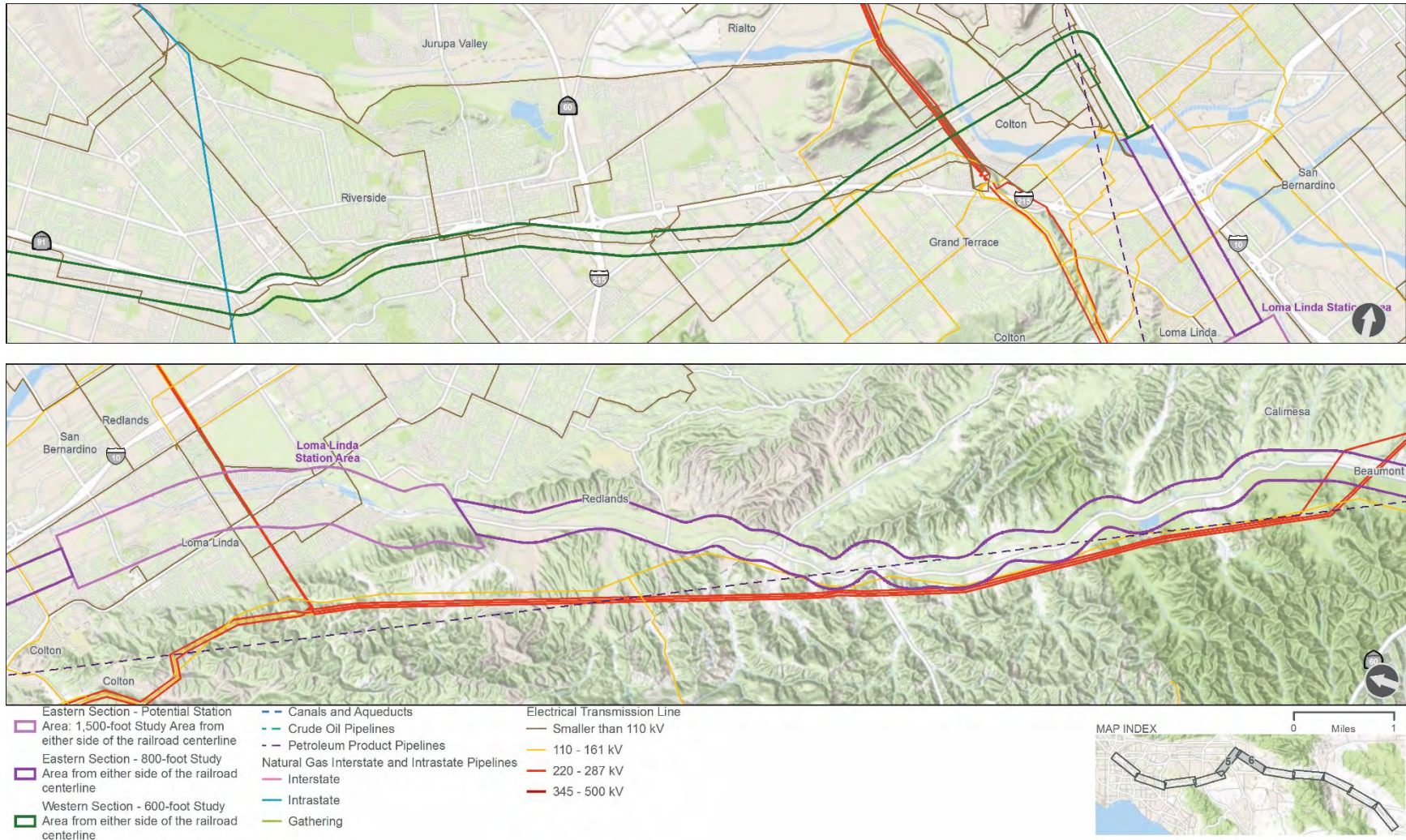
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Figure 3.12-1. Known Utilities within the Tier 1/Program EIS/EIR Study Area

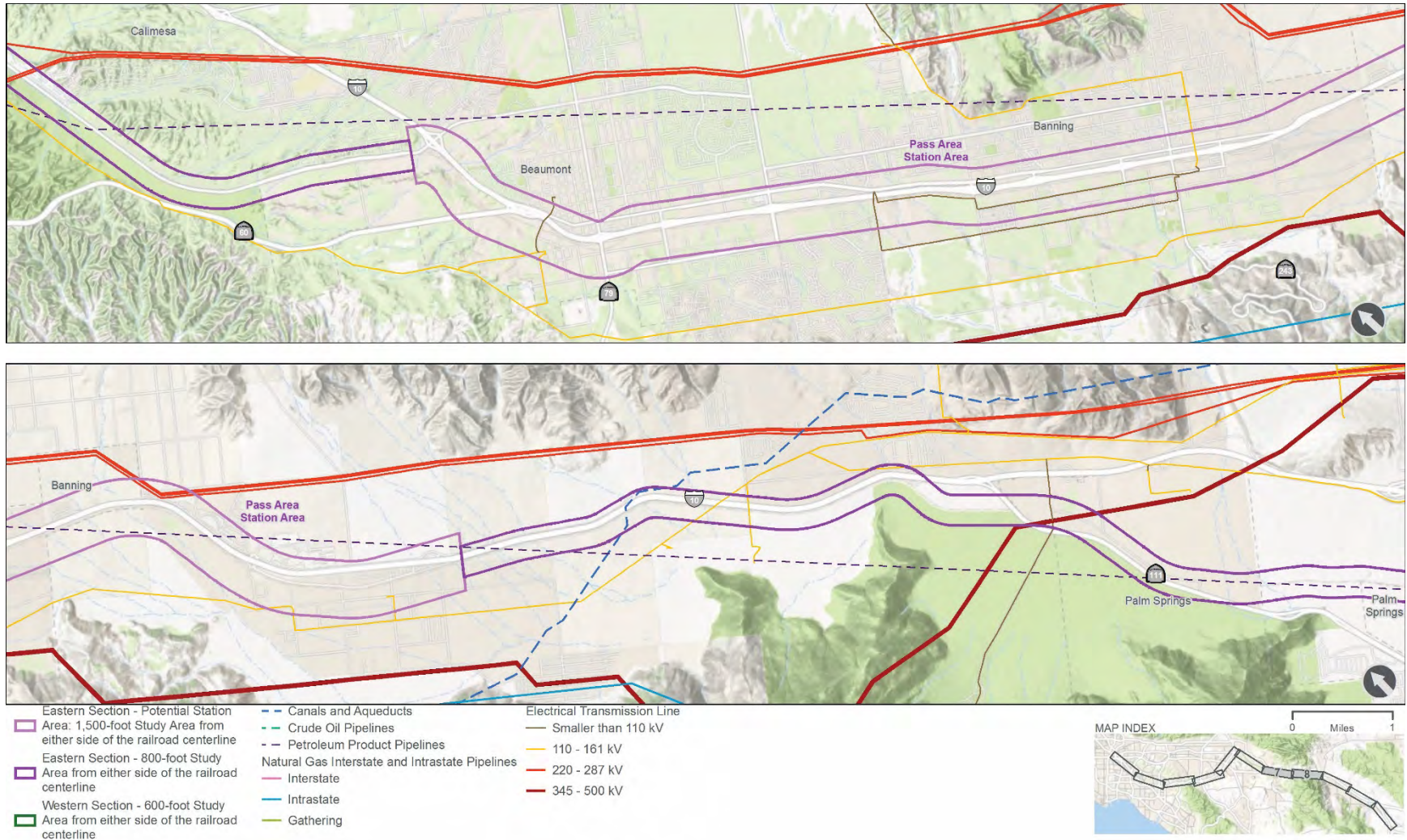
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Figure 3.12-1. Known Utilities within the Tier 1/Program EIS/EIR Study Area

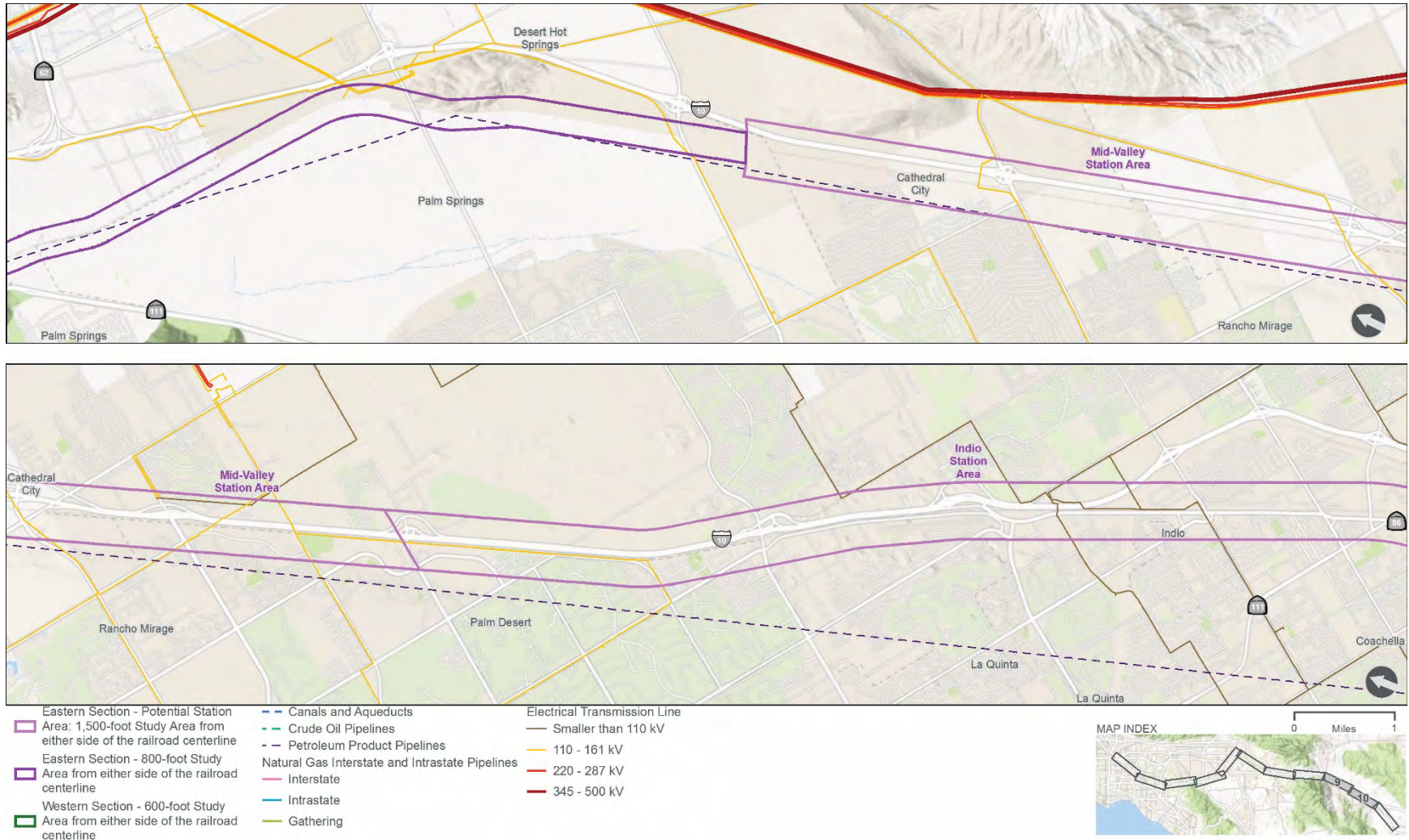
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Figure 3.12-1. Known Utilities within the Tier 1/Program EIS/EIR Study Area

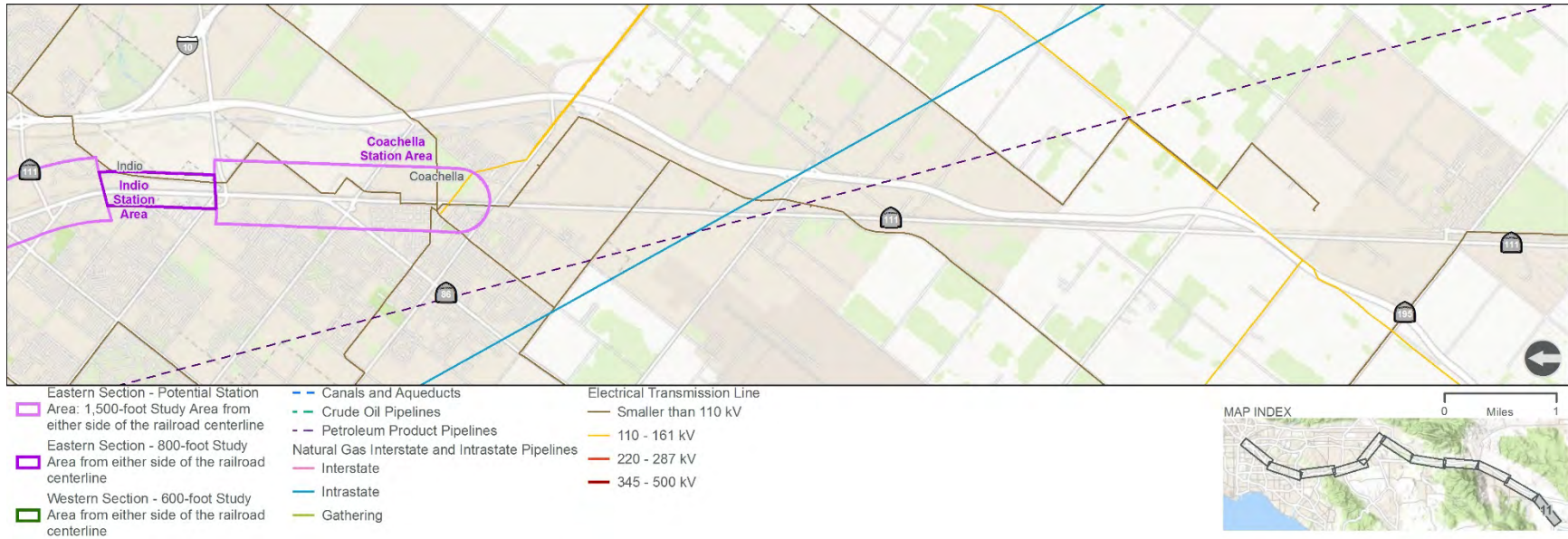
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Figure 3.12-1. Known Utilities within the Tier 1/Program EIS/EIR Study Area

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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	Pebble 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 power¹ (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.

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

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<i>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?</i>		
<i>Construction</i>		
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.
<i>Operation</i>		
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
<p>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.</p>	Not applicable	Not applicable
<p><i>Would the Program have sufficient water supplies available to serve the Program and reasonably foreseeable future development during normal, dry, and multiple dry years?</i></p>		
<p><i>Construction</i></p>		
<p>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.</p>	Not applicable	Not applicable
<p>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.</p>	<p>LU-2 LU-3</p>	<p>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.</p>
<p><i>Operation</i></p>		
<p>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.</p>	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>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.</p>	<p>UTL-1 LU-3</p>	<p>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.</p>
<p><i>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?</i></p>		
<p><i>Construction</i></p>		
<p>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.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>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.</p>	<p>Not applicable</p>	<p>Not applicable</p>

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 of 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
<p>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.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Operation</p>		
<p>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.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>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.</p>	<p>Not applicable</p>	<p>Not applicable</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<i>Would the Program comply with federal, state, and local management and reduction statutes and regulations related to solid waste?</i>		
<i>Construction</i>		
<p>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.</p>	Not applicable	Not applicable
<p>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.</p>	Not applicable	Not applicable
<i>Operation</i>		
<p>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.</p>	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>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.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p><i>Would the Program result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during construction or operation?</i></p>		
<p><i>Construction</i></p>		
<p>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.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>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.</p>	<p>GHG-1</p>	<p>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.</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Operation		
<p>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.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>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.</p>	<p>GHG-2</p>	<p>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.</p>
<p>Would the Program conflict with or obstruct a state or local plan for renewable energy or energy efficiency?</p>		
Construction		
<p>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.</p>	<p>Not applicable</p>	<p>Not applicable</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>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.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Operation</p>		
<p>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.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>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.</p>	<p>Not applicable</p>	<p>Not applicable</p>

Notes:

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

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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])

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3.13 Cultural Resources

3.13.1 Introduction

This section identifies the cultural, historic, and tribal cultural resources (TCR) within the Tier 1/Program EIS/EIR Cultural Study Area and provides an evaluation of potential cultural, historic, and tribal resources-related effects associated with the No Build Alternative and the Build Alternative Options. Information contained in this section is summarized from the *Cultural, Historic, and Tribal Resources Technical Memorandum* (Appendix H of this Tier 1/Program EIS/EIR).

FRA determined its federal action to provide financial assistance for the development of this Tier 1/Program EIS/EIR is an undertaking, as defined in Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations (36 CFR Part 800); however, this planning effort does not have the potential to affect historic properties. In making this determination, FRA has no further obligations under Section 106 with respect to this undertaking (i.e., Tier 1/Program EIS/EIR).

If one of the Build Alternative Options receives federal funding or requires federal approval to advance to construction during Tier 2/Project-level analysis, the funding action or approval may be considered a separate undertaking subject to Section 106.

To inform future undertakings that could be required during Tier 2/Project-level analysis, this Tier 1/Program EIS/EIR provides a preliminary identification of historic properties using data on previously evaluated cultural resources. Information on historic properties was obtained through the California Historical Resources Information System, as well as consultation with Native American tribes and other consulting parties to further identify known historic properties.

3.13.2 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 cultural, historic, and TCRs within the Tier 1/Program EIS/EIR Cultural Study Area and evaluated the potential impacts on those resources as a result of implementing the Build Alternative Options.

Federal

National Historic Preservation Act, Section 106

Section 106 of the NHPA (1966), as amended in 2000 [36 CFR Part 800], established a national policy of historic preservation and encourages such preservation. The NHPA established the Advisory Council on Historic Preservation and provided procedures for the agency to follow if a proposed action affects a property that is included, or that may be eligible for inclusion, in the NRHP. The NRHP was developed as a direct result of the NHPA.

Section 106 requires federal agencies to consider the impact of federal undertakings on any district, site, building, structure, or object included or eligible for inclusion in the NRHP. An undertaking is defined as a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a federal agency, including those carried out with federal funding, or requiring a federal permit, license, or approval.

National Register of Historic Places

NRHP eligibility determinations require an assessment of historic resources in relation to relevant historic contexts through criteria set forth in 36 CFR Section 60. The Advisory Council on Historic Preservation's implementing regulations, "Protection of Historic Properties," are found in 36 CFR Part 800. The NRHP criteria (36 CFR Part 60.4) are used to evaluate resources when complying with Section 106 of the NHPA. Those criteria state that eligible resources comprise "districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association," and any of the following criteria:

- **Criterion A:** That are associated with events that have made a significant contribution to the broad patterns of our history;
- **Criterion B:** That are associated with the lives of persons significant in our past;
- **Criterion C:** That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic value, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- **Criterion D:** That has yielded, or may be likely to yield, information important in prehistory or history.

Section 4(f) of the Department of Transportation Act of 1966

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 USC Section 303, declares that “it is the policy of the U.S. Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites.”

Section 4(f) specifies that the Secretary of Transportation may approve a transportation program or project requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of an historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if both of the following occur:

- There is no prudent and feasible alternative to using that land; and
- The program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

Section 4(f) resources are addressed in more detail in Chapter 5, Section 4(f) and 6(f) Discussion, of this Tier 1/Program EIS/EIR.

State

Assembly Bill 4239

In 1976, AB 4239 established the Native American Heritage Commission (NAHC) as the primary government agency responsible for identifying and cataloging Native American cultural resources.

Assembly Bill 52

In 2014, California Governor Jerry Brown signed AB 52 that established an additional requirement under CEQA for consultation with Native American tribes regarding TCRs. AB 52 requires that the CEQA lead agency notify any interested Native American tribes of a proposed project, only if those tribes have requested to be notified regarding the CEQA lead agency’s projects. The CEQA lead agency must consult in good faith with participating California Native American tribes prior to the release of the EIR. If a project has the potential to affect a TCR, the CEQA document must discuss whether there is a significant effect on a TCR and whether there are feasible alternatives or mitigation to avoid or substantially lessen effects on the TCR. Consultation is finished when one of the following applies: the parties agree to avoid or mitigate significant impacts on TCRs, or the CEQA lead agency, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.

California Health and Safety Code, Section 7050.5

This code makes it a misdemeanor to disturb or remove human remains found outside a cemetery. If human remains are discovered, this code also requires a project owner to halt construction and to contact the County Coroner.

California Register of Historical Resources

The California Register of Historical Resources (CRHR) is “an authoritative listing and guide to be used by state and local agencies, private groups, and citizens to identify the existing historical resources of the state and indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change” (California PRC Section 5024.1(a)). Certain resources are determined by the statute to be automatically included in the CRHR, including California properties formally determined eligible for, or listed in, the NRHP (PRC Section 5024.1(d)). Similar to NRHP, CRHR eligibility determinations require an assessment of historic resources in relation to relevant historic contexts through the following designation criteria:

- **Criterion 1:** Associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the U.S.
- **Criterion 2:** Associated with the lives of persons important to local, California, or national history
- **Criterion 3:** Embodies the distinctive characteristics of a type, period, region or method of construction or represents the work of a master or possesses high artistic values
- **Criterion 4:** Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation

Office of Historic Preservation

The Office of Historic Preservation (OHP) implements the policies of the NHPA on a statewide level. The State Historic Preservation Officer (SHPO) is an appointed official who implements historic preservation programs within the state’s jurisdictions.

Public Resources Code

- PRC 5097.5: Provides for the protection of cultural resources and prohibits the removal, destruction, injury, or defacement of archaeological features on any lands under the jurisdiction of state or local authorities.
- PRC 5097.97: States that no agency or party shall cause severe or irreparable damage to any Native American sanctified cemetery, place of worship, religious or ceremonial site, or

sacred shrine located on public property, except on a clear and convincing showing that the public interest and necessity so require. No previously recorded Native American religious or ceremonial sites are documented within the Tier 1/ Program EIS/EIR Cultural Study Area.

- PRC 5097.98 (b) and (e): Requires a landowner on whose property Native American human remains are found to limit further development activity in the vicinity until he/she confers with the NAHC-identified most likely descendants to consider treatment options. In the absence of most likely descendants or of a treatment acceptable to all parties, the landowner is required to reenter the remains elsewhere on the property in a location not subject to further disturbance.
- PRC 65092: Provides for notices of projects to be sent to California Native American tribes that are on the contact list maintained by the NAHC in the definition of "person" to whom notice of public hearings shall be sent by local governments.

Regional

Los Angeles County 2035 General Plan

The policies in the *Los Angeles County 2035 General Plan*, Conservation and Natural Resources Element recognizes the importance of protecting cultural resources and ensures that these resources are considered in project planning. These policies include the preservation and rehabilitation of historic buildings, mitigation of impacts from new development on or adjacent to historic, cultural, and paleontological resources to the greatest extent feasible, and implementation of proper notification and recovery processes for development on or near historic, cultural, and paleontological resources.

Orange County General Plan

The goals and policies in the *Orange County General Plan*, Resources Element recognizes the importance of protecting cultural resources and ensures that these resources are considered in project planning (Orange County 2005).

County of Riverside General Plan

The policies in the *County of Riverside General Plan*, Multipurpose Open Space Element recognizes the importance of cultural resources with the development of policies to ensure these resources are considered in project planning (County of Riverside 2003). These policies include application of the Cultural Resources Program to projects subject to environmental review; government-to-government consultation; application processing requirements; information databases; confidentiality of site locations; content and review of technical studies; professional consultant qualifications and

requirements; site monitoring; examples of preservation and mitigation techniques and methods; curation and the descendant community consultation requirements of local, state, and federal law.

County of San Bernardino General Plan

The policies in the *County of San Bernardino General Plan*, Conservation Element recognizes the importance of cultural resources with the development of policies to ensure these resources are considered in project planning (County of San Bernardino 2014). These policies include the preservation and promotion of historic and prehistoric cultural heritage and the identification and protection of important archaeological and historic cultural resources in areas of the county that have been determined to have known cultural resource sensitivity.

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.

3.13.3 Methods for Evaluating Environmental Effects

FRA, Caltrans, and RCTC are using a tiered NEPA process (e.g., Tier 1/Program EIS/EIR) to complete the environmental review of the Program, pursuant to 40 CFR Part 1508.28 (titled “Tiering”) and CEQA Guidelines Section 15168 (titled “Program EIR”) and Section 15170 (titled “Joint EIS/EIR”). Tiering is a staged environmental review process applied to complex transportation projects. The Tier 1/Program EIS/EIR, along with the concurrent preparation of the SDP, are the first steps in this tiered environmental review process. After the completion of the SDP, the broader proposed Program scope, which defines necessary infrastructure improvements, would be known.

Once funding is secured for further work, the Tier 1/Program EIS/EIR and SDP would be followed by Tier 2/Project-level analysis for site-specific infrastructure improvements and station facilities. This would be considered the second tier of environmental evaluation because it is based on the Tier 1/Program EIS/EIR that outlined the broad Program scope. This future Tier 2/Project-level analysis would closely align with the future preliminary engineering process and would analyze site-specific direct and indirect Project-level impacts, in addition to any required permits, consultations, or approvals needed for construction. If any Tier 2/Project-level analysis is sponsored by a federal agency, it would be subject to all relevant federal environmental laws and regulations, and the Tier 2/Project-level environmental documents would be led by the sponsoring federal agency.

Construction of the proposed rail infrastructure or station facility would not commence until after environmental clearance is completed at the Tier 2/Project-level.

Similarly, the Section 106 implementing regulations allow agencies to use a phased process to comply with Section 106 in coordination with NEPA, per 36 CFR Part 800.8(c)(1)(ii). At this time, FRA is funding the Tier 1/Program EIS/EIR planning phase only and has determined the planning effort does not have the potential to affect historic properties. However, to inform this planning effort and to facilitate potential future Section 106 reviews under Tier 2/Project-level analysis, FRA initiated consultation under 36 CFR Part 800.3 and conducted a preliminary identification of historic properties that included background research/data obtained from records search and other sources such as historical maps. It does not include data collected through archaeological or built environment surveys, nor does it include resource evaluations. The study completed in support of the Tier 1/Program EIS/EIR incorporates pertinent information received through consultation on historic properties.

The methodology used to evaluate potential effects on historic properties in this Tier 1/Program EIS/EIR is based on the methods that would inform the Section 106 process for an undertaking with the potential to affect historic properties. However, as site-specific locations for the Build Alternative Options rail infrastructure improvements and station facilities have not been selected at the Tier 1/Program level, the analysis in this section is presented at a broader corridor level. A limited records search was completed for the Tier 1/Program service-level evaluation to summarize and provide an overview of known cultural resources within the Tier 1/Program EIS/EIR Cultural Study Area. Since the Western Section would not require ground disturbance and would use existing infrastructure, the limited record and archival searches were only conducted for the Eastern Section of the Tier 1/Program EIS/EIR Cultural Study Area where ground-disturbing activities could occur. Where appropriate, publicly made data for the Western Section of the Tier 1/Program EIS/EIR Cultural Study Area has been included in this section for context. The identification of known cultural resources within the Tier 1/Program EIS/EIR Cultural Study Area relies on data obtained from previously evaluated cultural resources. For this Tier 1/Program service-level evaluation, no cultural resources were evaluated for NRHP or CRHR eligibility.

As part of the Tier 1/Program EIS/EIR scoping process, FRA, Caltrans, and RCTC identified potential consulting parties for Section 106 and AB 52, which included federal agencies, state agencies, local agencies, and federally and state-recognized Native American tribes that have cultural and traditional affiliation within or near the Eastern Section of the Tier 1/Program EIS/EIR Cultural Study Area. Section 106 and AB 52 consultation letters were sent out to gather information from and to provide meeting opportunities with the potential consulting parties to discuss the Program.

Input received from the consulting parties would be documented in this Tier 1/Program EIS/EIR and considered in future decision making.

Potential Tier 2/Project-Level Analysis Considerations

This Tier 1/Program EIS/EIR focuses on the evaluation of service-level impacts at the Program Corridor level. FRA has determined that this planning effort does not have the potential to affect historic properties or TCRs at the Tier 1/Program-level planning stage and that the Section 106 and AB 52 processes are complete for purposes of this Tier 1/Program EIS/EIR.

If federal funding is used, or a federal approval is required, to advance any of the Build Alternative Options to construction, that federal action would require a Tier 2/Project-level analysis and be considered a separate undertaking. Subsequent Section 106 and AB 52 efforts would be contingent on the identification of construction funding for site-specific Tier 2/Project-level rail infrastructure improvements and station facilities and would be led by the lead federal and state agencies for the Tier 2/Project-level improvement. The completion of any subsequent phases of the Section 106 and AB 52 processes by a lead federal and state agency encompasses the identification of an area of potential effects, the geographic areas within which a project may affect historic properties, and survey work to further identify cultural resources within the area of potential effects. The lead federal and state agencies would consult with the SHPO and Tribal Heritage Preservation Officers (THPO), other consulting parties, and the public, as necessary, when making these identifications. Those cultural resources identified within the area of potential effects, would be evaluated for their eligibility for listing in the NRHP. The lead federal and state agencies would then complete the assessment of effects on historic properties and the resolution of any adverse effects.

Therefore, the preliminary identification effort described in this Tier 1/Program EIS/EIR may be used to inform a future Tier 2/Project-level analysis, Section 106, and AB 52 consultations. Additional cultural resources would likely be identified during the Tier 2/Project-level analysis once site-specific details, such as station locations and footprints, are known. Identification of the site-specific Tier 2/Project-level study areas based on additional engineering and design would allow for consideration of site-specific measures to avoid, minimize, and mitigate impacts on cultural resources.

If there is a subsequent undertaking related to the Build Alternative Options at the Tier 2/Project-level, the lead federal agency for the undertaking would initiate consultation under Section 106 and complete the process in accordance with 36 CFR Part 800. If the lead federal and state agencies determine the undertaking has the potential to affect historic properties, additional outreach and consultation to the SHPO, Native American tribes, and other consulting parties would be required. This outreach and consultation may be based on the work completed for this Tier 1/Program EIS/EIR.

The findings and conclusions in this Tier 1/Program EIS/EIR do not preclude the consideration of additional cultural or TCRs. During the Section 106 and AB 52 consultation process for this Tier 1/Program effort, FRA and RCTC received input from the Agua Caliente Band of Cahuilla Indians of

the Agua Caliente Indian Reservation, Gabrieleño Band of Mission Indians – Kizh Nation, La Posta Band Diegueno Mission Indians of the La Posta Reservation, Pala Band of Mission Indians, San Manuel Band of Mission Indians, and Soboba Band of Luiseno Indians. Input received from these consultations identified areas within the Tier 1/Program EIS/EIR Cultural Study Area that contain TCRs. However, the boundaries of where these TCRs are located have not been provided due to confidentiality and further consultation would be required at the Tier 2/Project-level to determine whether site-specific TCRs are present based on advanced engineering design (e.g., site-specific rail infrastructure improvements and station facilities).

Avoidance is the preferred way to address impacts on cultural resources and TCRs. To the extent practicable, this Tier 1/Program EIS/EIR identifies avoidance measures for further consideration in a Tier 2/Project-level analysis and future undertaking. Site-specific avoidance, minimization, and mitigation measures would be developed as engineering and design progresses, and in consultation with SHPO, Native American tribes, the public, and other consulting parties.

Tier 1/Program EIS/EIR Cultural Study Area

This service-level evaluation is limited to a desktop evaluation of the data sources described in Section 3.13.3. The Tier 1/Program EIS/EIR Cultural Study Area was combined with data from national, state, and local inventories of archaeological and historical resources to determine the location of previously documented cultural resources proximate to the Tier 1/Program EIS/EIR Cultural Study Area. A detailed description of the Tier 1/Program EIS/EIR Cultural Study Area is provided in Section 3.1, Introduction to Environmental Analysis.

Data Sources

Data available from the South Central Coastal Information Center and Eastern Information Center of the California Historical Resources Information System in addition to a variety of other sources were used to identify cultural resources located within the Tier 1/Program EIS/EIR Cultural Study Area. Specifically, the following data sources were reviewed:

- **Federally designated historic districts and sites:** To identify sites present within the Tier 1/Program EIS/EIR Cultural Study Area, the National Park Service – U.S. Department of the Interior NRHP database was consulted.
- **State designated historic districts and sites:** To identify sites present within the Tier 1/Program EIS/EIR Cultural Study Area, the OHP CRHR database was consulted. This database also includes sites designated as California Historical Landmarks and California Points of Historical Interest. Additional resources consulted include records from the OHP

Archaeological Determinations of Eligibility and the OHP Directory of Properties in the Historic Property Data File.

Related Resources

This evaluation incorporates data and evaluation from related resources to contribute to the assessment of effects on archaeological, historical, and TCRs. These related resources are identified in Table 3.13-1.

Table 3.13-1. Related Resource Inputs to Cultural Resources Assessment

Resource	Input to Cultural Resources Assessment
Visual Quality and Aesthetics (Section 3.4)	Effects assessment on visual quality and aesthetics in relation to the NRHP-listed resources were considered.
Noise and Vibration (Section 3.6)	Effects assessment and identification of areas where noise and vibration thresholds may be exceeded in relation to any NRHP-listed resources were considered.
Geology, Soils, Seismicity, and Paleontological Resources (Section 3.10)	Geologic conditions were considered.

Notes:

NRHP=National Register of Historic Places

3.13.4 Affected Environment

Cultural resources are evidence of past human activity that includes objects, structures, sites, and other articles of historic, archaeological, or architectural significance. Cultural resources are present throughout California as a result of millennia of human history. Historic properties are cultural resources that are included in, or are eligible for inclusion in, the NRHP maintained by the Secretary of the Interior. This term, according to the NHPA (54 USC Section 300101), as amended, includes prehistoric or historic districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, engineering, and culture. The term also includes artifacts, records, and remains that are related to and located within such properties, and properties of traditional religious and cultural importance to a Native American tribe. Historic properties are afforded certain protections in accordance with state and federal legislation.

The Tier 1/Program EIS/EIR Cultural Study Area 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 Tier 1/Program EIS/EIR Cultural Study Area 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 Western Section of the Tier 1/Program EIS/EIR Cultural Study Area from Los Angeles to Colton is urbanized. The Eastern Section of the Tier 1/Program EIS/EIR Cultural Study Area is less urbanized with vacant land comprising the largest land use category within the Eastern Section of the Tier 1/Program EIS/EIR Cultural Study Area.

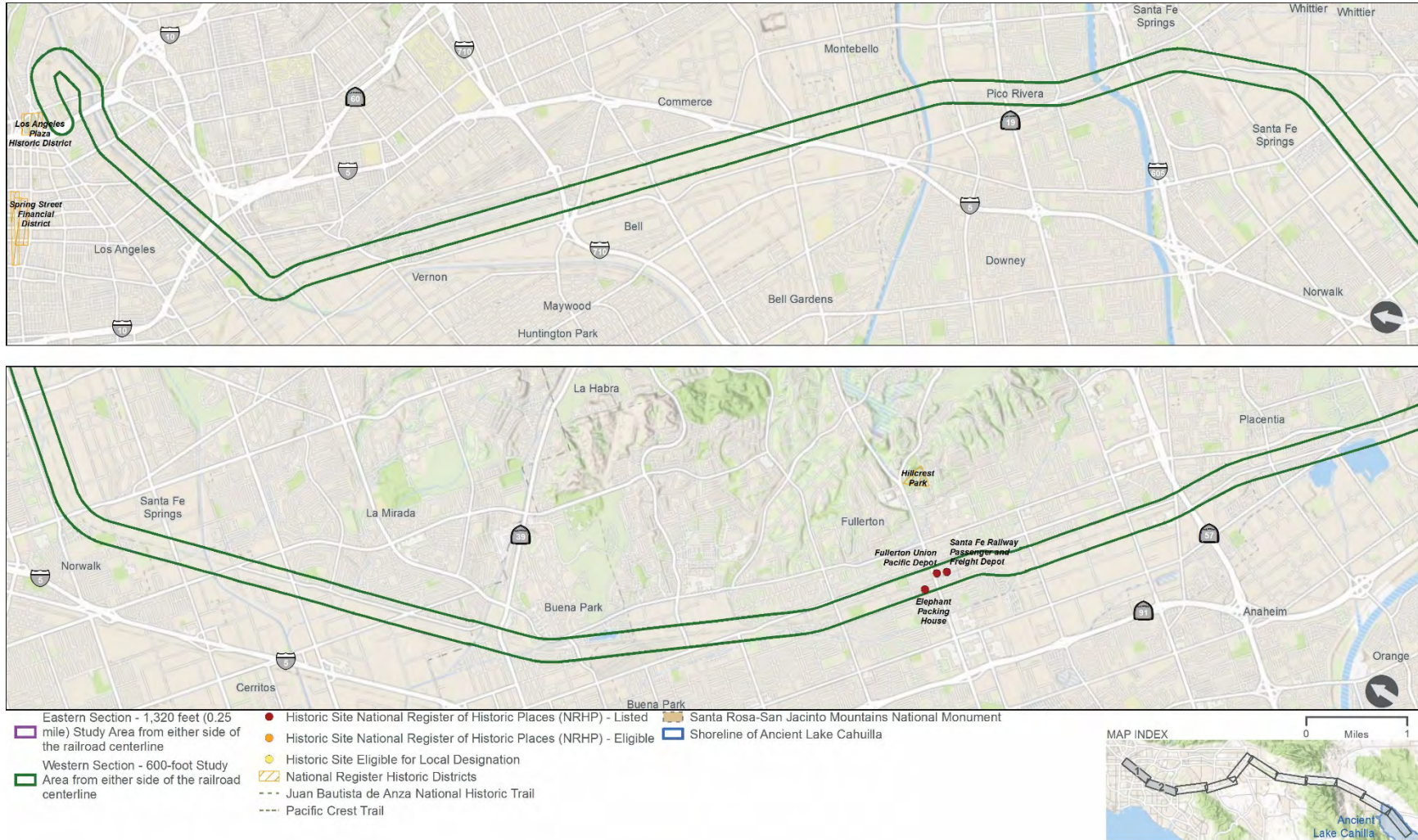
Archaeological and Historic Resources

The Tier 1/Program EIS/EIR Cultural Study Area crosses through the Southern California region which has experienced multiple prehistory periods (Terminal Pleistocene, Paleoindian, Early Archaic, and Late Prehistoric). The most numerous of the archaeological resources in the Coachella Valley at the east end of the Tier 1/Program EIS/EIR Cultural Study Area date to the Late Prehistoric period consisting of small processing sites associated with the grinding of vegetal resources. Larger habitation sites were less common but displayed a wider range of activities and longer periods of occupation. Typical artifacts at these sites include Desert Side-notched and Cottonwood Triangular projectile points and Lower Colorado Buff Ware and Tizon Brown Ware ceramics. Lithic artifacts found at these sites are typically made from chert, volcanic, or quartz material. In addition to these Late Prehistoric period sites, portions of the Eastern Section of the Tier 1/Program EIS/EIR Cultural Study Area are located within the shoreline boundaries of Lake Cahuilla, as shown on Figure 3.13-1.

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Figure 3.13-1. Known Historical Resource Sites within the Tier 1/Program EIS/EIR Cultural Study Area

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Figure 3.13-1. Known Historical Resource Sites within the Tier 1/Program EIS/EIR Cultural Study Area

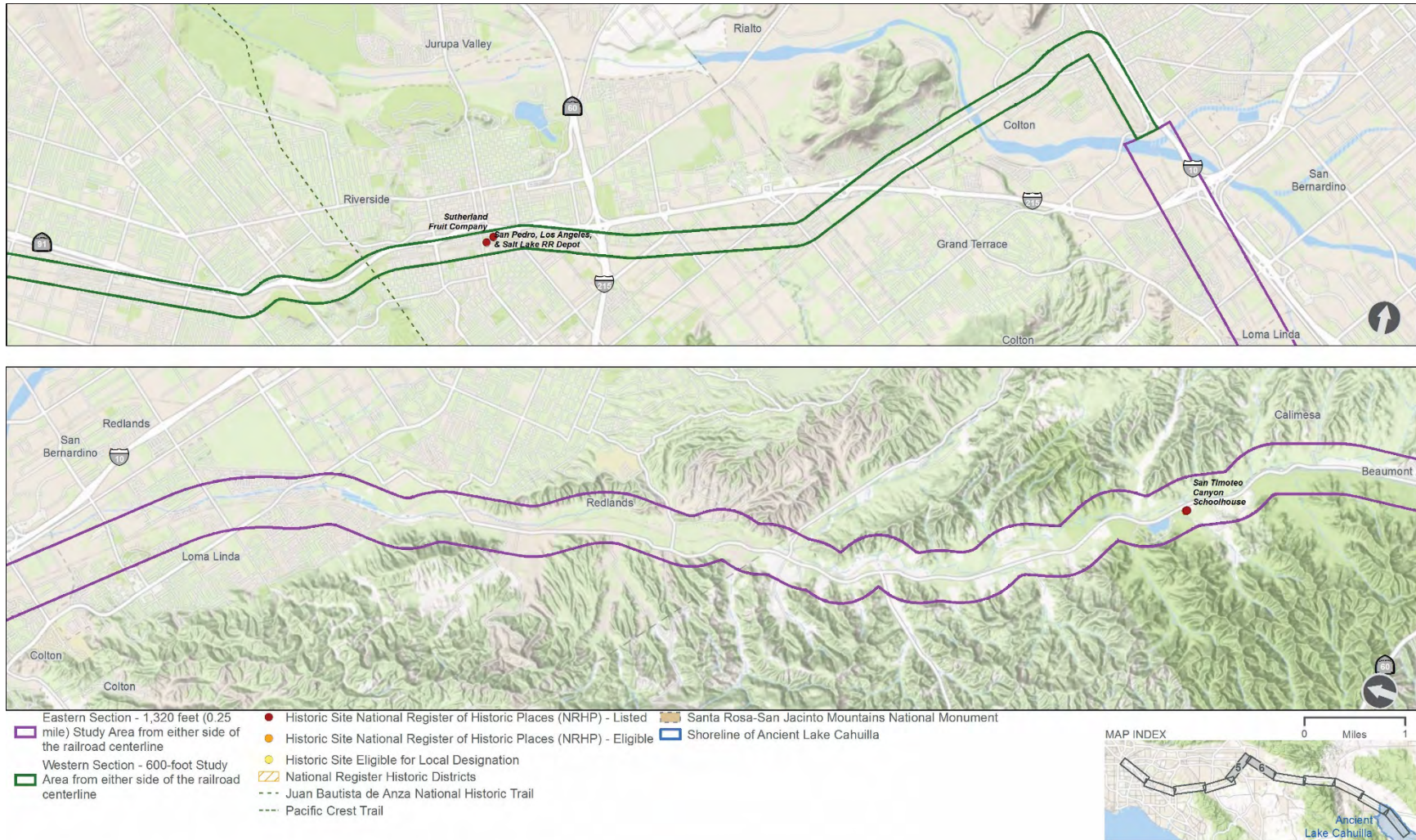
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Figure 3.13-1. Known Historical Resource Sites within the Tier 1/Program EIS/EIR Cultural Study Area

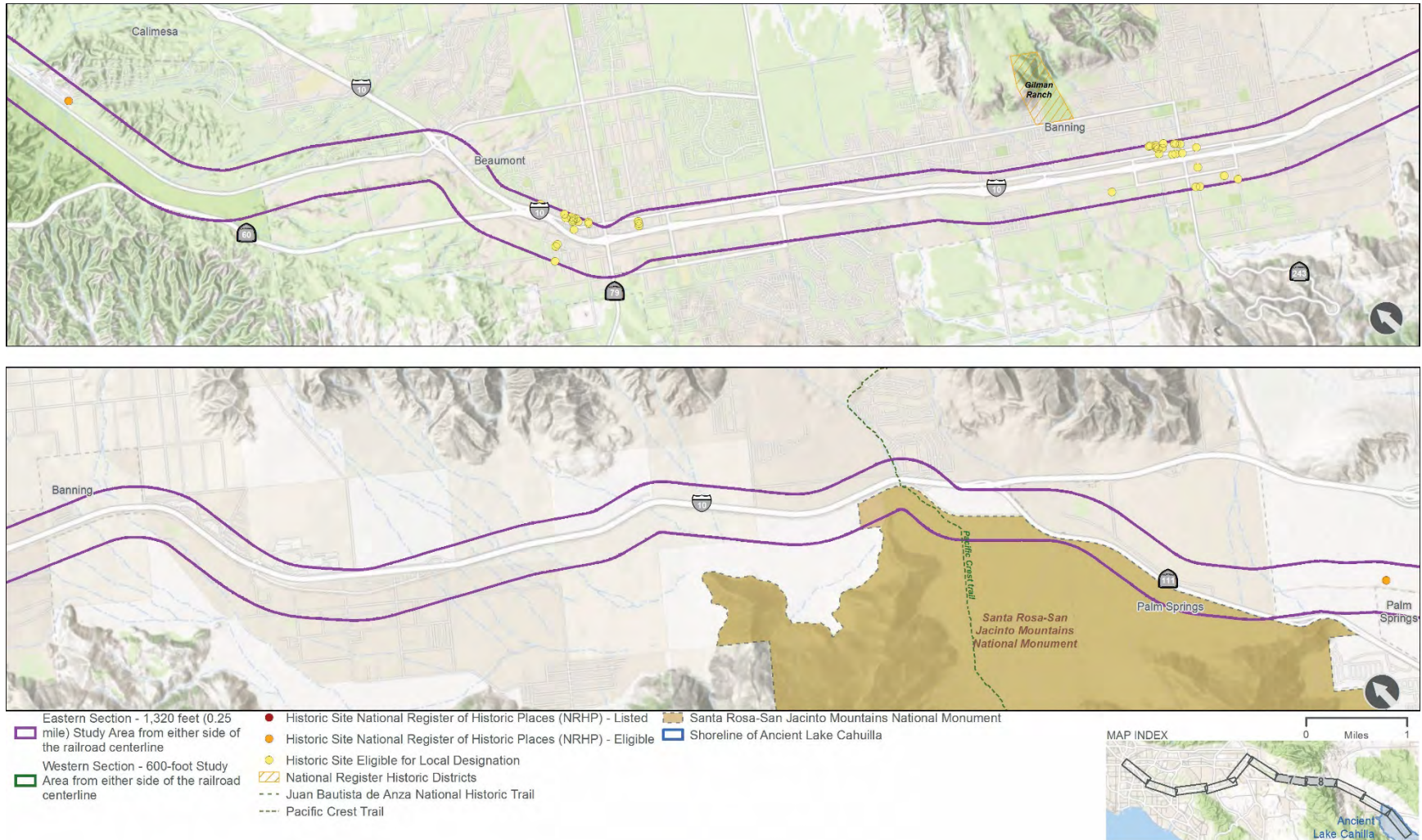
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Figure 3.13-1. Known Historical Resource Sites within the Tier 1/Program EIS/EIR Cultural Study Area

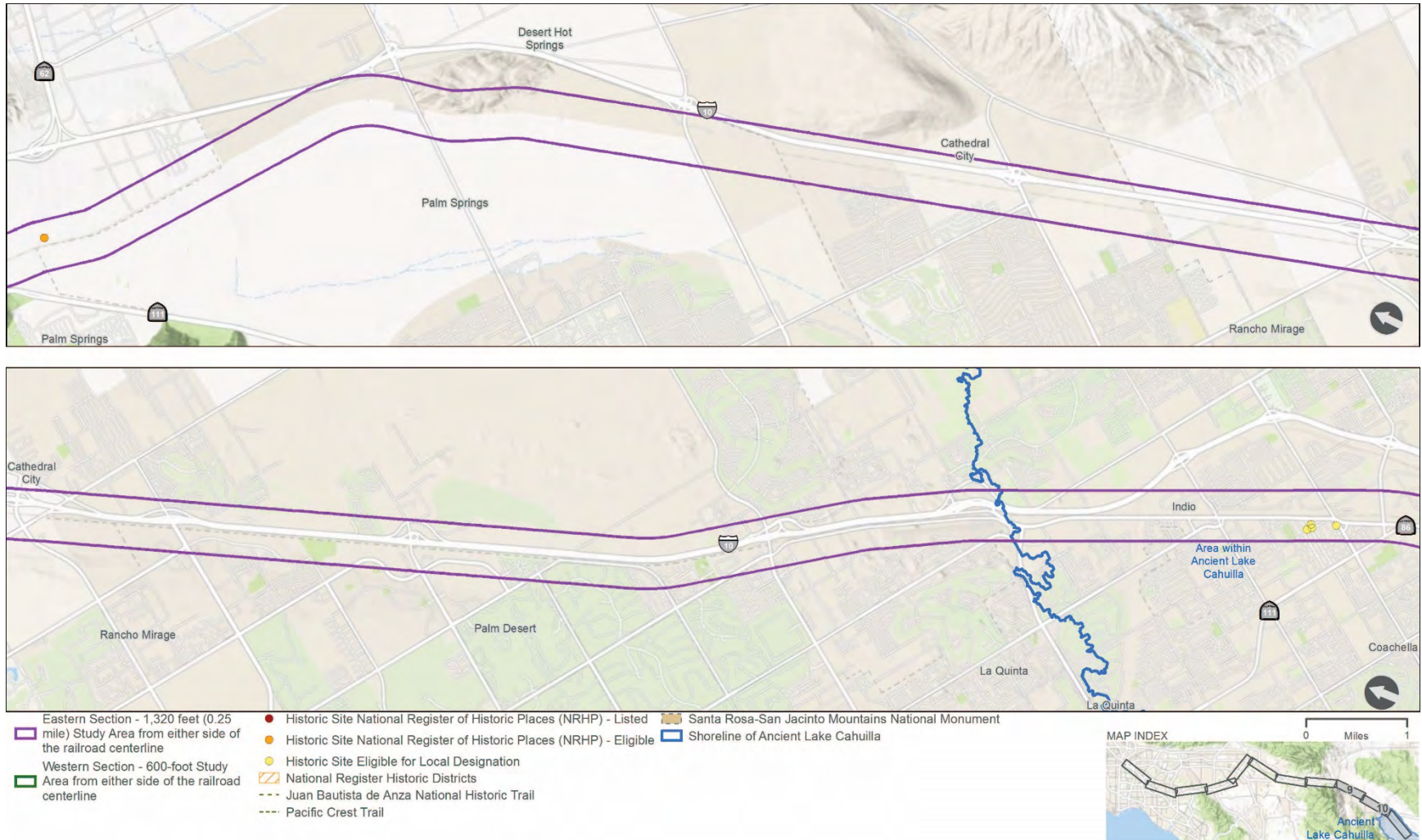
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Figure 3.13-1. Known Historical Resource Sites within the Tier 1/Program EIS/EIR Cultural Study Area

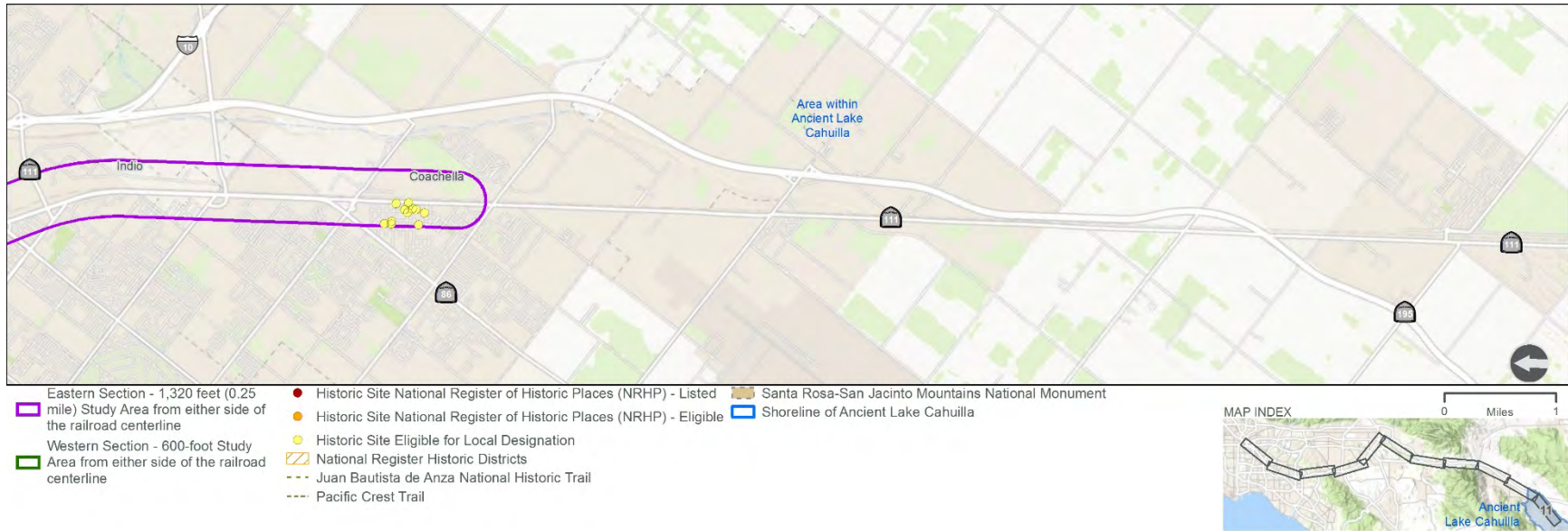
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Figure 3.13-1. Known Historical Resource Sites within the Tier 1/Program EIS/EIR Cultural Study Area

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Lake Cahuilla was a source of natural resources (e.g., water, freshwater mussels, waterfowl, and fish) that had profound effects on the prehistoric people who lived in the area and groups in the surrounding region. As a result, there were periods of increased human occupation around the lake, resulting in hundreds of Late Prehistoric sites along lake's shoreline and a lesser number that followed the shoreline as it receded. Eventually, silt from the Colorado River would flow through to Lake Cahuilla and would cut off the source of fresh water. Without a source of fresh water, Lake Cahuilla would quickly recede with proportional salinity.

At least four lake stands are widely accepted to have occurred, beginning around AD 700 and continuing until the late-seventeenth century. A fifth infilling, occurring after AD 1580, has been proposed based on recessional shoreline archaeological sites but more data is required for certainty. As previously mentioned, portions of the Eastern Section of the Tier 1/Program EIS/EIR Cultural Study Area lie entirely within the high stand (approximately 40-foot) area. This indicates that there is the potential for archaeological sites located in this area to have been occupied during periods when Lake Cahuilla was either receding or less likely infilling.

The Tier 1/Program EIS/EIR Cultural Study Area crosses through the Southern California region which has also experienced multiple events in what is considered the historic period (1769 AD to Present). These events include:

- Initial Spanish contact in California and the subsequent colonization of Alta California, generally known as the Spanish Colonial period (1769-1821) and the Mexican period (1821-1846);
- The rise of agricultural cultivation (with a focus on citrus cultivation) and the arrival of the California Southern (later the Santa Fe) and Southern Pacific Railroads during the 1870s and 1880s;
- Residential and commercial development associated with the post-World War I residential and industrial activity of Southern California during the boom years of the 1920s; and
- The rise of military-related industries and a large military presence during World War II with the establishment of March Field (March Air Reserve Base) and San Bernardino Air Material Command (Norton Air Force Base).

Additional details related to the prehistory and historical overview of the Southern California region are provided in the *Cultural, Historic, and Tribal Resources Technical Memorandum* (Appendix H of this Tier 1/Program EIS/EIR).

Build Alternative Option 1 (Coachella Terminus)

Due to the programmatic nature of this Tier 1/Program planning document, this Tier 1/Program EIS/EIR provides a preliminary identification of historic properties using data on previously evaluated cultural resources (archaeological sites and historic properties), which can be used to inform a future undertaking.

As shown on Figure 3.13-1, the Western Section of the Tier 1/Program EIS/EIR Cultural Study Area contains six NRHP-listed sites (Santa Fe Railway Passenger and Freight Depot, Fullerton UP Depot, Elephant Packing House, Bixby-Bryant Ranch House, Sutherland Fruit Company, and San Pedro, Los Angeles, and Salt Lake Railroad Depot) and passes through one National Register Historic District (Grand Boulevard Historic District). Information provided on NRHP-listed sites within the Western Section of the Tier 1/Program EIS/EIR Cultural Study Area is provided for contextual purposes as no construction activities are proposed within the Western Section, and operational activities are anticipated to remain the same as existing operations within the Western Section of the Tier 1/Program EIS/EIR Cultural Study Area.

Due to the potential for ground disturbing activities to occur within the Eastern Section of the Tier 1/Program EIS/EIR Cultural Study Area, a records search was conducted in July 2018 at the South Central Coastal Information Center and the Eastern Information Center. As summarized in Table 3.13-2, the records search resulted in the identification of 384 known cultural resources, consisting of 117 archaeological sites and 267 built resources, within the Eastern Section of the Tier 1/Program EIS/EIR Cultural Study Area under Build Alternative Option 1. Additional details associated with these resources, an explanation of the California Historical Resource Status Codes (used to classify the eligibility status of cultural resources for the NRHP and CRHR), and an explanation of California OHP Resource Attribute Codes are provided in the *Cultural, Historic, and Tribal Resources Technical Memorandum* (Appendix H of this Tier 1/Program EIS/EIR).

Table 3.13-2. Summary of Known Cultural Resources Within the Eastern Section of the Tier 1/Program EIS/EIR Cultural Study Area (Build Alternative Option 1)

Cultural Resource Type	NRHP- Listed Property	Potentially Eligible for NRHP Listing	Not Eligible for NRHP Listing	Not Evaluated for NRHP Eligibility	Total Number of Resources
Archaeological Sites (historic only)	0	5	27	49	81
Archaeological Sites (prehistoric only)	0	3	6	18	27

Cultural Resource Type	NRHP- Listed Property	Potentially Eligible for NRHP Listing	Not Eligible for NRHP Listing	Not Evaluated for NRHP Eligibility	Total Number of Resources
Archaeological Sites (historic and prehistoric)	0	0	1	6	7
Archaeological Sites (unknown)	0	0	0	2	2
Archaeological Districts	0	0	0	0	0
Built environment (buildings)	1	30	106	105	242
Built environment (structures)	0	3	14	6	23
Built environment (objects)	0	0	0	2	2
Built environment (districts)	0	0	0	0	0
Total number of resources	1	41	154	188	384

Sources: Appendix H of this Tier 1/Program EIS/EIR

Notes:

NRHP=National Register of Historic Places

As summarized in Table 3.13-2, of the 384 known archaeological sites and built resources located within the Eastern Section of the Tier 1/Program EIS/EIR Cultural Study Area under Build Alternative Option 1, 42 known cultural resources are identified as historic properties or could be eligible for historic listing under NRHP or CRHR criteria. 188 known cultural resources have not been evaluated for NRHP and could potentially be identified as historic properties under NRHP or CRHR criteria.

As shown on Figure 3.13-1, there is one NRHP-listed property within the Eastern Section of the Tier 1/Program EIS/EIR Cultural Study Area. This property is the San Timoteo Canyon Schoolhouse, which is located in the non-station area between the Loma Linda Station Area and the Pass Area Station Area.

While the San Timoteo Canyon Schoolhouse is within the Tier 1/Program EIS/EIR Cultural Study Area, the resource does not intersect with the rail line, which is approximately 327 feet away. The San Timoteo Canyon Schoolhouse was found to be significant at the local level under NRHP Criterion A (the resource made a contribution to the major pattern of events in American history in the areas of education and social history), with a period of significance of 1895 to 1937.

As part of the Tier 1/Program EIS/EIR scoping process, FRA, Caltrans, and RCTC identified potential consulting parties for Section 106 and AB 52, which included federal agencies, state

agencies, local agencies, and federally and state-recognized Native American tribes that have cultural and traditional affiliation within or near the Eastern Section of the Tier 1/Program EIS/EIR Cultural Study Area. Section 106 and AB 52 consultation letters were sent out to gather information from and to provide meeting opportunities with the potential consulting parties to discuss the Program.

On October 15, 2019, FRA sent letters inviting the listed parties in Table 3.13-3 to review the preliminary identification information and provide any other information or input they may have about the Program. On November 22 and 26, 2019, additional follow-up emails were sent to all parties whose invitation letters failed to be delivered (FTA and San Gorgonio Pass Historical Society). A summary of responses received to date is provided in Table 3.13-3.

The Section 106 consultation is complete for purposes of this Tier 1/Program EIS/EIR. Input received during the public review period of the Tier 1/Program EIS/EIR would be taken into consideration as part of future Tier 2/Project-level analysis and mitigation measures. Any future Tier 2/Project-level analysis would result in subsequent Section 106 consultation with local, state, and federal agencies, Native American tribes, and organizations to help identify site-specific TCR issues of concern. Native American Section 106 consultation efforts and summaries are provided under TCRs in Section 3.13.4.

Table 3.13-3. Section 106 Consulting Party Consultation Summary

Consulting Party	Responses Received to Date
Federal Agencies	
Bureau of Indian Affairs	No response received to date.
BLM	<p>October 28, 2019: The BLM (Palm Springs/South Coast Field Office) responded with a request to remain on mailing list for updates on the Program.</p> <p>February 13, 2020: John Dalton from the BLM Palm Springs Office attended a webinar about the Program. No further comments were received.</p>
FTA	<p>November 27, 2019: FTA (Region IX) responded that it has no additional information, questions, or comments regarding the Program.</p> <p>December 20, 2019: FRA extended a webinar invitation to FTA to discuss the Program and potential historic properties. FTA did not respond to the request and did not attend the webinar held February 13, 2020.</p>
USFWS	No response received to date.
State Agencies	
California Department of Parks and Recreation	No response received to date.
Caltrans, District 8	No response received to date.
California OHP	<p>November 14, 2019: The SHPO responded with a request to be kept informed as the undertaking progresses past the Tier 1/Program planning stages.</p> <p>February 13, 2020: Natalie Lindquist from the California SHPO attended a webinar about the Program. No further comments were received.</p>

Consulting Party	Responses Received to Date
County Agencies	
Riverside County	No response received to date.
San Bernardino County	No response received to date.
Local Agencies	
City of Banning	No response received to date.
City of Beaumont	No response received to date.
City of Calimesa	No response received to date.
Cathedral City	No response received to date.
City of Coachella	No response received to date.
City of Colton	No response received to date.
City of Colton – Historic Preservation Commission	No response received to date.
City of Desert Hot Springs	<p>October 30, 2019: The City of Desert Hot Springs responded with a request to be added as a consulting party for purposes of Section 106.</p> <p>January 7, 2020: The City of Desert Hot Springs declined to participate in the webinar scheduled for February 13, 2020.</p>
City of Indio	<p>October 21, 2019: The City of Indio responded with a request to be added as a consulting party for purposes of Section 106.</p> <p>February 13, 2020: Kevin Snyder from the City of Indio attended a webinar about the Program. No further comments were received.</p>

Consulting Party	Responses Received to Date
City of La Quinta	No response received to date.
City of La Quinta – Historic Preservation Commission	No response received to date.
City of Loma Linda	No response received to date.
City of Moreno Valley	No response received to date.
City of Palm Desert	No response received to date.
City of Palm Desert – Cultural Resource Preservation Committee	No response received to date.
City of Palm Springs	No response received to date.
City of Palm Springs – Historic Site Preservation Board	No response received to date.
City of Rancho Mirage	No response received to date.
City of Rancho Mirage – Historic Preservation Commission	No response received to date.
City of Redlands	No response received to date.
City of Redlands – Historic and Scenic Preservation Commission	No response received to date.
City of San Bernardino	No response received to date.
City of Yucaipa	No response received to date.

Consulting Party	Responses Received to Date
<i>Museums and Non-profits</i>	
Agua Caliente Cultural Museum	No response received to date.
Coachella Valley Historical Society	No response received to date.
Colton Area Museum	No response received to date.
Gilman Historic Ranch and Wagon Museum	No response received to date.
Malki Museum on Morongo Indian Reservation	No response received to date.
Moreno Valley Historical Society	No response received to date.
Palm Springs Historical Society	No response received to date.
Palm Springs Historical Society Museum	No response received to date.
Palm Springs Museum of Architecture and Design	No response received to date.
Palm Springs Preservation Foundation	No response received to date.
Public Arts and Historic Preservation Commission	No response received to date.
Redlands Area Historical Society	No response received to date.
Redlands Historical Museum Association	No response received to date.
San Bernardino County Museum	No response received to date.
San Gorgonio Pass Historical Society	No response received to date.

Consulting Party	Responses Received to Date
Yucaipa Valley Historical Society	No response received to date.

Notes:

BLM=Bureau of Land Management; Caltrans=California Department of Transportation; FRA=Federal Railroad Administration; FTA=Federal Transit Administration; OHP=Office of Historic Preservation; SHPO=State Historic Preservation Officer; U.S.=United States; USFWS=United States Fish and Wildlife Service

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Build Alternative Option 2 (Indio Terminus)

The Western Section of the Tier 1/Program EIS/EIR Cultural Study Area for Build Alternative Option 2 is the same as identified for Build Alternative Option 1. Information provided on NRHP-listed sites within the Western Section of the Tier 1/Program EIS/EIR Cultural Study Area is provided for contextual purposes as no construction activities are proposed within the Western Section, and operational activities are anticipated to remain the same as existing operations within the Western Section of the Tier 1/Program EIS/EIR Cultural Study Area.

As summarized in Table 3.13-4, the records search resulted in the identification of a total of 361 known cultural resources consisting of 112 archaeological sites and 249 built resources within the Eastern Section of the Tier 1/Program EIS/EIR Cultural Study Area under Build Alternative Options 2 and 3.

Table 3.13-4. Summary of Known Cultural Resources Within the Eastern Section of the Tier 1/Program EIS/EIR Cultural Study Area (Build Alternative Options 2 and 3)

Cultural Resource Type	NRHP- Listed Sites	Potentially Eligible for NRHP Listing	Not Eligible for NRHP Listing	Not Evaluated for NRHP Eligibility	Total Number of Sites
Archaeological Sites (historic only)	0	5	27	49	81
Archaeological Sites (prehistoric only)	0	3	6	15	24
Archaeological Sites (historic and prehistoric)	0	0	1	4	5
Archaeological Sites (unknown)	0	0	0	2	2
Archaeological Districts	0	0	0	0	0
Built environment (buildings)	1	25	106	93	225
Built environment (structures)	0	3	13	6	22
Built environment (objects)	0	0	0	2	2

Cultural Resource Type	NRHP- Listed Sites	Potentially Eligible for NRHP Listing	Not Eligible for NRHP Listing	Not Evaluated for NRHP Eligibility	Total Number of Sites
Built environmental (districts)	0	0	0	0	0
Total number of sites	1	36	153	171	361

Sources: Appendix H of this Tier 1/Program EIS/EIR

Notes:

NRHP=National Register of Historic Places

Regional history, NRHP-listed sites, and preliminary Section 106 consultation efforts for Build Alternative Option 2 are the same as Build Alternative Option 1.

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

Regional history, NRHP-listed sites, and preliminary Section 106 consultation efforts for Build Alternative Option 3 are the same as Build Alternative Option 2.

Human Remains

Health and Safety Code Section 7050.5(b) specifies protocols to be followed when human remains are discovered. In addition, CEQA Guidelines Section 15064.5 assigns special importance to human remains and establishes procedures to be used when Native American remains are discovered.

Build Alternative Option 1 (Coachella Terminus)

As summarized in Table 3.13-2, there are 117 known archaeological resources located within the Eastern Section of the Tier 1/Program EIS/EIR Cultural Study Area under Build Alternative Option 1. Of these 117 known archaeological resources, human remains are present at 6 sites, 14 sites have the potential to contain human remains, and human remains are absent at the remaining 97 sites.

Build Alternative Option 2 (Indio Terminus)

As summarized in Table 3.13-4, there are 112 known archaeological resources located within the Eastern Section of the Tier 1/Program EIS/EIR Cultural Study Area under Build Alternative Option 2. Of these 112 known archaeological resources, human remains are present at 6 sites, 11 sites have the potential to contain human remains, and human remains are absent at the remaining 95 sites.

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

Information related to human remains for Build Alternative Option 3 are the same as Build Alternative Option 2.

Tribal Cultural Resources

TCRs include site features, places, cultural landscapes, and sacred places or objects, which are of cultural value to a Native American tribe. Native American tribes have unique knowledge about sensitive resources important to tribal communities and provide insight to religious understanding, traditional stories, knowledge of resources (such as varying landscapes, bodies of waters, animals and plants), and self-identity. Knowledge of place is central to the continuation and persistence of culture.

In compliance with Section 106 of the NHPA and AB 52 requirements of CEQA, FRA and RCTC are undertaking Native American consultation to identify TCRs that could potentially occur within the Tier 1/Program EIS/EIR Cultural Study Area. This section provides a synopsis of the Native American consultation efforts that have occurred as of the date of this Tier 1/Program EIS/EIR.

Build Alternative Option 1 (Coachella Terminus)

As part of the Tier 1/Program EIS/EIR scoping process, FRA, Caltrans, and RCTC identified potential consulting parties for Section 106 and AB 52 which included federally and state-recognized Native American tribes that have cultural and traditional affiliation within or near the Eastern Section of the Tier 1/Program EIS/EIR Cultural Study Area.

As part of federal government-to-government Section 106 tribal consultation efforts, a Sacred Lands File Search request was submitted to the NAHC for the Eastern Section of the Tier 1/Program EIS/EIR Cultural Study Area on June 20, 2017, on behalf of FRA, the NEPA lead agency under Section 106. The NAHC responded June 27, 2017, that sites to which Native American tribes may attach religious and cultural significance are present within the Eastern Section of the Tier 1/Program EIS/EIR Cultural Study Area but provided no specific information regarding the sites' nature or location other than USGS Quadrangle township and range locations. In addition, the NAHC provided a list of Native American tribes that may have information regarding TCRs in or near the Eastern Section of the Tier 1/Program EIS/EIR Cultural Study Area, with recommendations to contact the local tribal entities for more information regarding the sites.

No construction activities would be required to implement the Build Alternative Options within the Western Section of the Tier 1/Program EIS/EIR Cultural Study Area because the existing railroad ROW and station areas from LAUS to Colton would be used to increase service by two daily round

trips. For this reason, the Western Section of the Tier 1/Program EIS/EIR Cultural Study Area was not included as part of the request to NAHC.

On October 15, 2019, FRA mailed invitations to consult to the list of Native American tribes identified in Table 3.13-5. On November 5, 2019, a follow-up email was sent to those mailing recipients whose letters were returned undeliverable. On December 20, 2019, a final follow-up email was sent to all Native American tribes who had not yet responded, using the original October 15, 2019 letter as an attachment. For any Native American tribe where an email was either unavailable or undeliverable, a follow-up phone call was made. A summary of responses received is provided in Table 3.13-5.

The Section 106 Native American consultation is complete for purposes of this Tier 1/Program EIS/EIR. Input received during the public review period of the Tier 1/Program EIS/EIR would be taken into consideration as part of future Tier 2/Project-level analysis and site-specific mitigation measures. Any future Tier 2/Project-level analysis would result in subsequent Section 106 consultation with Native American tribes to identify TCR issues of concern.

Table 3.13-5. Section 106 Native American Consultation Summary

Native American Tribe	Responses Received to Date
<i>Federally Recognized Tribes</i>	
<p>Agua Caliente Band of Cahuilla Indians of the Agua Caliente Indian Reservation</p>	<p>November 15, 2020: The Native American tribe responded and requests government-to-government consultation, additional information regarding the Program (shapefiles of the area of potential effects, copies of any cultural resource documentation), and to schedule a meeting with FRA to discuss the Program.</p> <p>February 13, 2020: Lacy Padilla and Patty Garcia, THPO, from the Agua Caliente Band of Cahuilla Indians of the Agua Caliente Indian Reservation attended a webinar about the Program. The THPO requested and FRA provided a copy of the presentation, shapefiles for the alignment, and all records search results for the internal files. No formal written comments were received from the tribe or THPO.</p>
Augustine Band of Cahuilla Indians	No response received to date
Cabazon Band of Mission Indians	No response received to date
Cahuilla Band of Mission Indians	No response received to date
Campo Band of Mission Indians	No response received to date
Ewiappayp Band of Kumeyaay Indians	No response received to date
Jamul Indian Village of California	No response received to date
La Jolla Band of Luiseno Indians	No response received to date
La Posta Band Diegueno Mission Indians of the La Posta Reservation	<p>December 20, 2019: The Native American tribe responded and recommended that if there is ground disturbance, a native monitor should be on site. The Native American tribe has not requested government-to-government consultation with FRA.</p>

Native American Tribe	Responses Received to Date
Los Coyotes Band of Cahuilla and Cupeno Indians	No response received to date
Manzanita Band Diegueno Mission Indians of the Manzanita Reservation California	No response received to date
Morongo Band of Cahuilla Mission Indians ^a	January 29, 2020: Morongo THPO, Travis Armstrong, verbally discussed participating in Section 106 consultation with FRA.
Pala Band of Mission Indians ^a	March 5, 2020: Pala Band of Mission Indians THPO, Dr. Shasta Gaughen, responded that the Program is not within the boundaries of the recognized Pala Indian Reservation and is beyond the boundaries of the territory that the Pala Band of Mission Indians considers its Traditional Use Area.
Pauma Band of Luiseno Indians – Pauma and Yuma Reservation ^a	No response received to date
Pechanga Band of Luiseno Mission Indians of the Pechanga Reservation ^a	No response received to date
Ramona Band of Cahuilla	No response received to date
Rincon Band of Luiseno Mission Indians of the Rincon Reservation ^a	No response received to date
San Manuel Band of Mission Indians	November 25, 2019: The Native American tribe responded that it does not elect to be a consulting party for purposes of the Tier 1/Program evaluation. However, the Native American tribe has indicated that it would like to be informed of Tier 2/Project-level analysis.
San Pasqual Band of Diegueno Mission Indians of California ^a	No response received to date
Santa Rosa Band of Cahuilla Indians	No response received to date

Native American Tribe	Responses Received to Date
Soboba Band of Luiseno Indians ^a	<p>November 18, 2019: The Native American tribe responded with a request for government-to-government consultation and to schedule a meeting with FRA. The Native American tribe has also requested that a Soboba Native American Monitor be present for all ground-disturbing activities and that procedures regarding repatriation of cultural items, treatment and disposition of human remains, coordination with County Coroner's Office, and non-disclosure of reburial locations be implemented.</p> <p>January 30, 2020: In a separate meeting regarding a different project, Joseph Ontiveros, THPO, from the Soboba Band of Luiseno Indians, requested shapefiles of the alignment from FRA. The shapefiles, as requested, were sent to THPO Joseph Ontiveros on January 30, 2020</p> <p>February 10, 2020: Joseph Ontiveros, THPO, from the Soboba Band of Luiseno Indians provided a letter notifying FRA of a potentially eligible Traditional Cultural Property for the NRHP and CRHR. It recommended that consultation with Soboba continues, and that future federal actions associated with the area incorporate an approach that considers tribal resources.</p> <p>February 11, 2020: Joseph Ontiveros, THPO, from the Soboba Band of Luiseno Indians attended a webinar about the Program. The THPO requested and FRA provided a copy of the presentation, shapefiles for the alignment, and all records search results for the internal files. No formal written comments were received from the tribe or THPO.</p>
Sycuan Band of the Kumeyaay Nation	No response received to date
Torres-Martinez Desert Cahuilla Indians	No response received to date
Twenty-Nine Palms Band of Mission Indians of California ^a	No response received to date
Viejas Band of Kumeyaay Indians ^a	No response received to date

Native American Tribe	Responses Received to Date
<i>Non-Federally Recognized Tribes</i>	
Gabrieleño Band of Mission Indians – Kizh Nation	<p>January 16, 2020: The Native American tribe responded with a request for government-to-government consultation under Section 106 and to schedule a meeting with FRA.</p> <p>January 23, 2020: The Tier 1/Program team contacted Chairman Andrew Salas on behalf of FRA to discuss setting up a meeting. After this initial discussion, Chairman Salas indicated that there was no need to meet at this time to further discuss the Tier 1/Program evaluation; however, Chairman Salas indicated that the Kizh Nation wants to be involved and informed of Tier 2/Project-level analysis.</p>
Gabrieleno/Tongva San Gabriel Band of Mission Indians	No response received to date
Gabrielino Tongva Indians of California Tribal Council	No response received to date
Gabrielino/Tongva Nation	No response received to date
Gabrielino-Tongva Tribe	No response received to date
San Fernando Band of Mission Indians	No response received to date
Serrano Nation of Mission Indians	No response received to date

Notes:

^a This indicates the Native American tribe has a THPO.

CRHR=California Register of Historical Resources; FRA=Federal Railroad Administration; NRHP=National Register Historic Places; THPO=Tribal Historic Preservation Officer

Recognizing that Native American tribes may have expertise with regard to their tribal history and practices, AB 52 requires that RCTC, as the lead agency under CEQA, provide notice to Native American tribes that are traditionally and culturally affiliated with the geographic area of the Project if they have requested notice of projects proposed within that area. As part of AB 52 Native American consultation efforts, RCTC mailed invitations to consult to the list of Native American tribes identified in Table 3.13-6. A summary of responses received, is provided in Table 3.13-6. RCTC has completed AB 52 Native American consultation for purposes of the Tier 1/Program EIS/EIR.

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Table 3.13-6. Assembly Bill 52 Native American Consultation Summary

Native American Tribe	Responses Received to Date
Gabrieleño Band of Mission Indians – Kizh Nation	<p>October 19, 2016: RCTC sends out an invitation to consult on the Program for purposes of AB 52.</p> <p>October 30, 2016: The Native American tribe responded with a request for government-to-government consultation under AB 52.</p> <p>August 29, 2019: RCTC provided additional information (updated Program description and background research conducted regarding known archaeological resources within the Tier 1/Program EIS/EIR Cultural Study Area). Since the Western Section of the Tier 1/Program EIS/EIR Cultural Study Area, located largely within the Gabrieleño Band of Mission Indians Kizh Nation Ancestral Territory, did not propose any ground-disturbing activities, RCTC asked that the Native American tribe reconfirm their request to consult under AB 52 for the Tier 1/Program evaluation.</p> <p>September 30, 2019: RCTC sent a follow-up email to request confirmation by October 4, 2019, from the Native American tribe on the need to consult further under AB 52 based on the information RCTC provided on August 29, 2019. No further response has been received.</p>
San Manuel Band of Mission Indians	<p>August 29, 2019: RCTC sends out an invitation to consult on the Program for purposes of AB 52.</p> <p>September 11, 2019: The Native American tribe responded with a request for further information to assess their level of involvement with the Tier 1/Program analysis. The Native American tribe also stated that, while the majority of the Tier 1/Program EIS/EIR Cultural Study Area exists outside of Serrano ancestral territory, there are concerns regarding the portion from Colton to Beaumont and Banning and the Loma Linda/Redlands/Colton area within the Eastern Section of the Tier 1/Program EIS/EIR Cultural Study Area.</p> <p>September 30, 2019: RCTC provided additional information (copy of the <i>Cultural Resources Technical Memorandum</i>).</p> <p>October 3, 2019: Upon review of the additional information provided, the Native American tribe noted that they did not have concerns with the Draft Tier 1/Program EIS/EIR and will wait until Tier 2/Project-level notifications to discuss specific activities that may impact resources of concern to the San Manuel Band of Mission Indians.</p>

Notes:

^a This indicates the Native American Tribe has a THPO.

AB=Assembly Bill; EIS=environmental impact statement; EIR=environmental impact report; RCTC=Riverside County Transportation Commission; THPO=Tribal Historic Preservation Officer

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Build Alternative Option 2 (Indio Terminus)

Information related to TCRs within Build Alternative Option 2 are the same as Build Alternative Option 1.

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

Information related to TCRs within Build Alternative Option 3 are the same as Build Alternative Option 1.

3.13.5 Environmental Consequences

Overview

An adverse effect is defined by Section 106 regulations as an effect that alters, directly or indirectly, the qualities that make a resource eligible for listing in the NRHP (36 CFR Part 800.5[a][1]). A property's location, design, setting, materials, workmanship, feeling, and association must be considered to the extent that these qualities contribute to the integrity and significance of a resource. Adverse effects may be direct and reasonably foreseeable, or they may be more remote in time or distances that an effect alters the qualities that make a resource eligible for listing in the NRHP, directly or indirectly (36 CFR Part 800.5[a][1]).

A project that causes a substantial adverse change in the significance of a historical resource is a project that may have a substantial effect under CEQA (PRC Section 15064.5[b]). A substantial adverse change in the significance of a historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historical resource would be materially impaired. The significance of a historical resource is materially impaired if a project demolishes or materially alters any qualities that justify the inclusion or eligibility for inclusion of a resource in the CRHR or inclusion of the resource on a local register. Additionally, a project with an effect that may cause a substantial adverse change in the significance of a TCR is a project that may have a significant effect on the environment (PRC Section 21084.2).

If an archaeological site does not meet the criteria for a historical resource but does meet the definition of a unique archaeological resource, mitigation or avoidance measures would be implemented (14 CCR Section 15064.5[b][3]). If an archaeological resource is neither a unique archaeological resource or a historical resource, the effects of the project on those resources would not be considered a significant effect on the environment. It would be sufficient that both the resources and the effects on it are included in the initial study or EIR, if one is prepared to address

effects on other resources, but they need not be considered further in the CEQA process (14 CCR Section 15064.5[c][4]).

FRA determined its federal action to provide financial assistance for the development of this Tier 1/Program EIS/EIR is an undertaking, as defined in Section 106 of the NHPA, and its implementing regulations (36 CFR Part 800), but this planning effort does not have the potential to affect historic properties. In making this determination, FRA has no further obligations under Section 106 with respect to this undertaking (i.e., Tier 1/Program EIS/EIR). Completion of subsequent Section 106 processes would occur pursuant to the August 17, 2018 Advisory Council on Historic Preservation *Program Comment to Exempt Consideration of Effects to Rail Properties within Rail Rights-of-Way*, as well as 36 CFR Part 800, as appropriate, if there is a future undertaking associated with construction under Tier 2/Project-level analysis.

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 on cultural or tribal resources are anticipated under the No Build Alternative.

Build Alternative Options 1, 2, and 3

Historic Property Effects

CONSTRUCTION

Western Section. No construction activities would be required to implement any of the Build Alternative Options within the Western Section of the Tier 1/Program EIS/EIR Cultural Study Area 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 Tier 1/Program EIS/EIR Cultural Study Area. Therefore, no ground-disturbing activities would be anticipated that could result in the disturbance of known or previously undiscovered historic properties. When compared with the No Build Alternative, effects on historic properties would be negligible within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Effects on historic properties would vary depending on the future location of a passenger rail system within the selected Build Alternative Option. Construction of rail infrastructure improvements and station facilities could result in effects on known cultural resources if the resources are near or within an area where an infrastructure improvement or station facility is being constructed. In addition, ground-disturbing activities may also result in inadvertent discovery of previously unknown cultural resources.

As summarized in Table 3.13-2, there are 384 known cultural resources within the Eastern Section of the Tier 1/Program EIS/EIR Cultural Study Area under Build Alternative Option 1. Of these 384 known cultural resources, 1 resource is a listed NRHP property, 41 resources are potentially eligible for NRHP or CRHR listing, and 188 resources have not been evaluated for NRHP or CRHR eligibility.

As summarized in Table 3.13-4, there are 361 known cultural resources within the Eastern Section of the Tier 1/Program EIS/EIR Cultural Study Area under Build Alternative Options 2 and 3. Of these 361 known cultural resources, 1 resource is a listed NRHP property, 36 resources are potentially eligible for NRHP or CRHR listing, and 171 resources have not been evaluated for NRHP or CRHR eligibility.

Effects on known and previously unknown cultural resources may include damage or destruction during ground-disturbing activities associated with construction of rail infrastructure improvements or station facilities within the Eastern Section of the Tier 1/Program EIS/EIR Cultural Study Area. Damage may also be caused through vibrations caused by geotechnical testing, use of heavy equipment, or any earth-moving activities.

Avoidance is the preferred way to address cultural resources. As all the Build Alternative Options propose use of the same corridor, avoidance options at the broad, corridor service-level are limited. However, as described above, decisions on avoidance methods would be evaluated and determined during Tier 2/Project-level analysis when site-specific details on the rail infrastructure improvement or station facility are known. When compared with the No Build Alternative, Build Alternative Option 1 could have a substantial effect on cultural resources within the Eastern Section of the Tier 1/Program EIS/EIR Cultural Study Area. When compared with Build Alternative Option 1, Build Alternative Options 2 and 3 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 substantial when compared with the No Build Alternative.

OPERATION

Western and Eastern Sections. 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 Tier 1/Program EIS/EIR Cultural Study Area between Los Angeles and Coachella. Operational effects are anticipated to be limited to maintenance of culverts, bridges, embankments, and station areas, which are not anticipated to result in ground-disturbing activities. Therefore, no ground-disturbing activities would be anticipated that could result in the disturbance of known or previously undiscovered historic properties. When compared with the No Build Alternative, effects on historic properties would be negligible within the Western and Eastern Sections under Build Alternative Options 1, 2, and 3.

Human Remains Effects

CONSTRUCTION

Western Section. No construction activities would be required to implement any of the Build Alternative Options within the Western Section of the Tier 1/Program EIS/EIR Cultural Study Area 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 Tier 1/Program EIS/EIR Cultural Study Area. Therefore, no ground-disturbing activities would be anticipated that could result in the disturbance of human remains. When compared with the No Build Alternative, effects on human remains would be negligible within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Construction of rail infrastructure improvements and station facilities could result in effects on human remains if human remains are present within an area where an infrastructure improvement or station facility is being constructed. In addition, ground-disturbing activities may also result in inadvertent discovery of previously unknown human remains. CEQA Guidelines Section 15064.5 requires that excavation activities be stopped whenever human remains are uncovered and the County Coroner be called in to assess the remains. If the County Coroner determines that the remains are those of Native Americans, the NAHC must be contacted within 24 hours. At that time, the lead agency must consult with the appropriate Native Americans, if any, as identified by the NAHC. CEQA Guidelines Section 15064.5 directs the lead agency, under certain circumstances, to develop an agreement with the Native Americans for the treatment and disposition of the remains.

When compared with the No Build Alternative, Build Alternative Option 1 could have a moderate effect on human remains within the Eastern Section of the Tier 1/Program EIS/EIR Cultural Study Area. When compared with Build Alternative Option 1, Build Alternative Options 2 and 3 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 moderate when compared with the No Build Alternative.

OPERATION

Western and Eastern Sections. 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 Tier 1/Program EIS/EIR Cultural Study Area between Los Angeles and Coachella. Operational effects are anticipated to be limited to maintenance of culverts, bridges, embankments, and station areas, which are not anticipated to result in ground-disturbing activities. Therefore, no ground-disturbing activities would be anticipated that could result in the disturbance of human remains. When compared with the No Build Alternative, effects on human remains would be negligible within the Western and Eastern Sections under Build Alternative Options 1, 2, and 3.

Tribal Cultural Resource Effects

CONSTRUCTION

Western Section. No construction activities would be required to implement any of the Build Alternative Options within the Western Section of the Tier 1/Program EIS/EIR Cultural Study Area 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 Tier 1/Program EIS/EIR Cultural Study Area. Therefore, no construction activities would be anticipated that could result in the effects or impacts on TCRs. When compared with the No Build Alternative, effects on TCRs would be negligible within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Effects on TCRs would vary depending on the future location of a passenger rail system within the selected Build Alternative Option. Construction of rail infrastructure improvements and station facilities within the Eastern Section of the Tier 1/Program EIS/EIR Cultural Study Area could result in effects on TCRs if the resources are near or within an area where an infrastructure improvement or station facility is being constructed. In addition, ground-disturbing activities may also result in inadvertent discovery of previously unknown TCRs. Effects on TCRs may include damage or destruction during ground-disturbing activities associated with construction of rail infrastructure improvements or station facilities within the Eastern Section of the Tier 1/Program EIS/EIR Cultural Study Area. Avoidance is the preferred way to address TCRs. As all the Build Alternative Options propose use of the same Program Corridor, avoidance options at the broad, corridor service-level

are limited. However, as described above, decisions on avoidance methods would be evaluated and determined during Tier 2/Project-level analysis when site-specific details on the rail infrastructure improvement or station facility are known.

When compared with the No Build Alternative, Build Alternative Option 1 could have a substantial effect on TCRs within the Eastern Section of the Tier 1/Program Tier 1/Program EIS/EIR Cultural Study Area. When compared with Build Alternative Option 1, Build Alternative Options 2 and 3 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 substantial when compared with the No Build Alternative.

OPERATION

Western and Eastern Sections. 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 Tier 1/Program EIS/EIR Cultural Study Area between Los Angeles and Coachella. The operation of the additional passenger trains would not be anticipated to affect TCRs as passenger trains currently operate in the Western and Eastern Sections. Other operational activities would be limited to maintenance of culverts, bridges, embankments, and station areas, which are not anticipated to result in effects on TCRs. Effects associated with the Western and Eastern Sections of Build Alternative Options 1, 2, and 3 on TCRs would be negligible when compared with the No Build Alternative.

3.13.6 NEPA Summary of Potential Effects

Table 3.13-7 through Table 3.13-9 summarize the qualitative assessment of potential effects (negligible, moderate, or substantial) under NEPA for each of the Build Alternative Options. This service-level analysis uses the Tier 1/Program EIS/EIR Cultural Study Area to determine if cultural resources may be affected and the relative magnitude of the effect.

Table 3.13-7. NEPA Summary of Effects on Historic Properties

Alternative Option	NRHP-Listed Properties	Resources Eligible for Listing on the NRHP	Resources Not Evaluated for NRHP Eligibility	Total Number of Previously Recorded Cultural Resources	Potential Intensity of Effect: Western Section	Potential Intensity of Effect: Eastern Section
No Build Alternative ^a	Not applicable	Not applicable	Not applicable	Not applicable	Construction: None Operation: None	Construction: None Operation: None
Build Alternative Option 1 (Coachella Terminus)	7	41	188	384	Construction: Negligible Operation: Negligible	Construction: Substantial Operation: Negligible
Build Alternative Option 2 (Indio Terminus)	7	36	171	361	Construction: Negligible Operation: Negligible	Construction: Substantial Operation: Negligible
Build Alternative Option 3 (Indio Terminus with Limited Third Track)	7	36	171	361	Construction: Negligible Operation: Negligible	Construction: Substantial Operation: Negligible

Notes:

^a The No Build Alternative includes existing and potential expansion of roadway, passenger rail, and air travel facilities within the Tier 1/Program EIS/EIR Cultural Study Area; however, for the service-level evaluation, identifying levels of effect from potential expansion of those facilities is speculative and would be dependent on Tier 2/Project-level analysis.

NRHP=National Register of Historic Places

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Table 3.13-8. NEPA Summary of Effects on Human Remains

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

Notes:

- ^a The No Build Alternative includes existing and potential expansion of roadway, passenger rail, and air travel facilities within the Tier 1/Program EIS/EIR Cultural Study Area; however, for the service-level evaluation, identifying levels of effect from potential expansion of those facilities is speculative and would be dependent on Tier 2/Project-level analysis.

Table 3.13-9. NEPA Summary of Effects on Tribal Cultural Resources

Alternative Option	Potential Intensity of Effect: Western Section	Potential Intensity of Effect: Eastern Section
No Build Alternative ^a	Construction: None Operation: None	Construction: None Operation: None
Build Alternative Option 1 (Coachella Terminus)	Construction: Negligible Operation: Negligible	Construction: Substantial Operation: Negligible
Build Alternative Option 2 (Indio Terminus)	Construction: Negligible Operation: Negligible	Construction: Substantial Operation: Negligible

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

Notes:

- ^a The No Build Alternative includes existing and potential expansion of roadway, passenger rail, and air travel facilities within the Tier 1/Program EIS/EIR Cultural Study Area; however, for the service-level evaluation, identifying levels of effect from potential expansion of those facilities is speculative and would be dependent on Tier 2/Project-level analysis.

3.13.7 CEQA Summary of Potential Impacts

Based on the information provided in Sections 3.13.4 and 3.13.5, and considering the CEQA Guidelines Appendix G Checklist questions for cultural resources and TCRs, the Build Alternative Options would have potentially significant impacts on cultural and TCRs when reviewed on a Program-wide basis. Placing the rail infrastructure improvements and new stations largely within or along the existing ROW reduces the potential for significant impacts associated with known resources. However, because the infrastructure and station sites have not been selected, some areas that may contain cultural and tribal resources may be significantly impacted. At the Tier 1/Program analysis level, it is not possible to know the location, extent, and particular characteristics of impacts on these resources. Proposed mitigation strategies discussed in Section 3.13.8 would be applied to reduce potential impacts.

Table 3.13-10 summarizes the CEQA significance conclusions for the Build Alternative Options; the proposed mitigation strategies that could be applied to minimize, reduce, or avoid the potential impacts; and the significance determination after mitigation strategies are applied. The identification and implementation of site-specific mitigation measures necessary for Tier 2/Project-level implementation would occur as part of the Tier 2/Project-level analysis.

Table 3.13-10. CEQA Summary of Impacts on Cultural Resources

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<i>Would the Program cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?</i>		
<i>Construction</i>		
<p>Western Section – No Impact. No construction impacts on historical resources are anticipated under Build Alternative Option 1, 2, or 3 at the Tier 1/Program EIS/EIR evaluation level because no physical improvements that would require ground-disturbing activities are proposed or required within the Western Section.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – Potentially Significant. Potential impacts on historic resources depend on the location of rail infrastructure improvements, station facilities and types of construction activities, which have yet to be determined. The Eastern Section contains known historical resources and could contain additional unknown historical resources. Construction of rail infrastructure improvements and station facilities have the potential to impact historical resources through ground-disturbing activities. Therefore, potentially significant impacts under Build Alternative Option 1, 2, or 3 are anticipated at the Tier 1/Program EIS/EIR evaluation level. Site-specific impacts on historical resources would be identified and evaluated during the Tier 2/Project-level analysis.</p>	<p>CUL-1</p>	<p>Potentially Significant. CUL-1 minimize, reduce, or avoid potential impacts on historical resources through design, further analysis, and the avoidance of resources. However, it is unknown to what extent and type of impact on historical resources would occur. Impacts may remain significant and unavoidable if further analysis determines that a non-renewable historical resource would be impacted by the rail infrastructure improvement or station facility proposed.</p>
<i>Operation</i>		
<p>Western Section – No Impact. The increase in train service (two additional round-trip daily trains within the Tier 1/Program EIS/EIR Cultural Study Area) would not change existing land use and would not result in changes associated with a historical resource. Therefore, no operational impacts under Build Alternative Option 1, 2, or 3 are anticipated at the Tier 1/Program EIS/EIR evaluation level.</p>	<p>Not applicable</p>	<p>Not applicable</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – No Impact. Once construction ceases, operation of the new railroad infrastructure and stations under the Build Alternative Options are not anticipated to result in changes associated with a historical resource. Therefore, no impacts under Build Alternative Option 1, 2, or 3 are anticipated at the Tier 1/Program EIS/EIR evaluation level.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p><i>Would the Program cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?</i></p>		
<p><i>Construction</i></p>		
<p>Western Section – No Impact. No construction impacts on archaeological resources are anticipated under Build Alternative Option 1, 2, or 3 at the Tier 1/Program EIS/EIR evaluation level because no physical improvements that would require ground-disturbing activities are proposed or required within the Western Section.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – Potentially Significant. Potential impacts on archaeological resources depend on the location of rail infrastructure improvements, station facilities, and types of construction activities, which are currently unknown. The Eastern Section contains known archaeological resources and could contain additional unknown archaeological resources. Construction of rail infrastructure improvements and station facilities have the potential to impact archaeological resources through ground-disturbing activities. Therefore, potentially significant impacts are anticipated under Build Alternative Option 1, 2, or 3 at the Tier 1/Program EIS/EIR evaluation level. Site-specific impacts on archaeological resources would be identified and evaluated during the Tier 2/Project-level analysis.</p>	<p>CUL-1</p>	<p>Potentially Significant. CUL-1 would minimize, reduce, or avoid potential impacts on archaeological resources through design, further analysis, and the avoidance of resources. However, it is unknown to what extent and type of impact on archaeological resources would occur. Impacts may remain significant and unavoidable if further analysis determines that a non-renewable archaeological resource would be impacted by the rail infrastructure improvement or station facility proposed.</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Operation		
<p>Western Section – No Impact. The increase in train service (two additional round-trip daily trains within the Tier 1/Program EIS/EIR Cultural Study Area) would not change existing land use and would not result in a substantial change of an archaeological resource within the Western Section of the Tier 1/Program EIS/EIR Cultural Study Area. Therefore, no impacts are anticipated under Build Alternative Option 1, 2, or 3.</p>	Not applicable	Not applicable
<p>Eastern Section – No Impact. Once construction ceases, operation of the new railroad infrastructure and stations under the Build Alternative Options are not anticipated to result in changes associated with an archaeological resource. Therefore, no impacts are anticipated under Build Alternative Option 1, 2, or 3 at the Tier 1/Program EIS/EIR evaluation level.</p>	Not applicable	Not applicable
<p>Would the Program disturb any human remains, including those interred outside of dedicated cemeteries?</p>		
Construction		
<p>Western Section – No Impact. No construction impacts on human remains are anticipated under Build Alternative Option 1, 2, or 3 at the Tier 1/Program EIS/EIR evaluation level because no physical improvements that would require ground-disturbing activities are proposed or required within the Western Section.</p>	Not applicable	Not applicable
<p>Eastern Section – Less Than Significant. The potential for the inadvertent discovery of human remains during ground disturbing activities exists. However, implementation of requirements and procedures contained in California Health and Safety Code Section 7050.5 and Section 7052 and California Public Resources Code Section 5097 would reduce these potential impacts to less than significant.</p>	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Operation		
Western Section – No Impact. Operational activities in the Western Section include the maintenance of existing rail infrastructure and station facilities. These maintenance activities are not anticipated to require ground-disturbing activities that could result in the disturbance of human remains. 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
Eastern Section – No Impact. Operational activities in the Eastern Section include the maintenance of existing rail infrastructure and station facilities. These maintenance activities are not anticipated to require ground-disturbing activities that could result in the disturbance of human remains. 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
<i>Would the Program cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?</i>		
Construction		
Western Section – No Impact. No construction impacts on TCRs are anticipated under Build Alternative Option 1, 2, or 3 at the Tier 1/Program EIS/EIR evaluation level because no physical improvements are proposed or required within the Western Section.	Not applicable	Not applicable
Eastern Section – Potentially Significant. Potential impacts depend on the location of rail infrastructure improvements, station facilities, and types of construction activities, which are currently unknown. Construction of rail infrastructure improvements and station facilities have the potential to impact TCRs through ground-disturbing activities. Preliminary AB 52 Native American consultation at the Tier 1/Program evaluation phase has been initiated and completed. While no specific comments were received regarding TCRs, requests to receive Tier 2/Project-level notifications were made. Site-specific	CUL-1	Potentially Significant. CUL-1 would minimize, reduce, or avoid potential impacts on TCRs through design, further analysis, and the avoidance of resources. However, it is unknown to what extent and type of impact on TCRs would occur. Impacts may remain significant and unavoidable if further analysis determines that a

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>impacts on TCRs would be identified and evaluated during the Tier 2/Project-level analysis.</p>		<p>non-renewable TCR would be impacted by the rail infrastructure improvement or station facility proposed. Additional AB 52 Native American consultation is anticipated to be initiated during the Tier 2/Project-level environmental process.</p>
<p>Operation</p>		
<p>Western Section – No Impact. Operational activities in the Western Section include the maintenance of existing rail infrastructure and station facilities. These maintenance activities are not anticipated to require activities that could result in the impacts on TCRs. Therefore, no operational impacts are anticipated under Build Alternative Option 1, 2, or 3 at the Tier 1/Program EIS/EIR evaluation level.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – No Impact. Operational activities in the Eastern Section include the maintenance of existing rail infrastructure and station facilities. These maintenance activities are not anticipated to require activities that could result in the impacts on TCRs. Therefore, no operational impacts are anticipated under Build Alternative Option 1, 2, or 3 at the Tier 1/Program EIS/EIR evaluation level.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p><i>Would the Program cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?</i></p>		
<p>Construction</p>		
<p>Western Section – No Impact. No construction impacts on TCRs are anticipated under Build Alternative Option 1, 2, or 3 at the Tier 1/Program EIS/EIR evaluation level because no physical improvements are proposed or required within the Western Section.</p>	<p>Not applicable</p>	<p>Not applicable</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Potentially Significant. Potential impacts depend on the location of rail infrastructure improvements, station facilities, and types of construction activities, which are currently unknown. Construction of rail infrastructure improvements and station facilities have the potential to impact TCRs through ground-disturbing activities. Preliminary AB 52 Native American consultation at the Tier 1/Program evaluation phase has been initiated and completed. While no specific comments were received regarding TCRs, requests to receive Tier 2/Project-level notifications were made. Site-specific impacts on TCRs would be identified and evaluated during the Tier 2/Project-level analysis.</p>	<p>CUL-1</p>	<p>Potentially Significant. CUL-1 would minimize, reduce, or avoid potential impacts on TCRs through design, further analysis, and the avoidance of resources. However, it is unknown to what extent and type of impact on TCRs would occur. Impacts may remain significant and unavoidable if further analysis determines that a non-renewable TCR would be impacted by the rail infrastructure improvement or station facility proposed. Additional AB 52 Native American consultation is anticipated to be initiated during the Tier 2/Project-level environmental process.</p>
<p>Operation</p>		
<p>Western Section – No Impact. Operational activities in the Western Section include the maintenance of existing rail infrastructure and station facilities. These maintenance activities are not anticipated to require activities that could result in the impacts on TCRs. Therefore, no operational impacts are anticipated under Build Alternative Option 1, 2, or 3 at the Tier 1/Program EIS/EIR evaluation level.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – No Impact. Operational activities in the Eastern Section include the maintenance of existing rail infrastructure and station facilities. These maintenance activities are not anticipated to require activities that could result in the impacts on TCRs. Therefore, no operational impacts are anticipated under Build Alternative Option 1, 2, or 3 at the Tier 1/Program EIS/EIR evaluation level.</p>	<p>Not applicable</p>	<p>Not applicable</p>

Notes:

AB=Assembly Bill; EIS=environmental impact statement; EIR=environmental impact report; PRC=Public Resource Code; TCR=tribal cultural resource

3.13.8 Avoidance, Minimization, and Mitigation Strategies

Identified below are proposed 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 for the site-specific rail infrastructure improvement or station facility being proposed. If any Tier 2/Project-level analysis results in an adverse effect on a property that is listed, eligible, or potentially eligible for listing in the NRHP or CRHR, potential site-specific mitigation measures could include additional research to recover data or exhaust the information potential of a site, changes in project design, development of a memorandum of agreement with a public involvement component, a programmatic agreement, site-specific archaeological treatment plans and historic building surveys, and other site-specific mitigation measures that may result from subsequent Tier 2/Project-level Section 106 and AB 52 consultation.

Additional Section 106 and AB 52 consultation with all applicable consulting parties, resource agencies, and/or Native American tribes over potentially affected properties would be key to developing successful Tier 2/Project-level documents for any of the Build Alternative Options. Decisions on avoidance methods would be evaluated and determined during Tier 2/Project-level analysis when site-specific details on the rail infrastructure improvement or station facility are known.

Mitigation Strategy CUL-1: During subsequent Tier 2/Project-level analysis, a preliminary cultural resource screening shall be conducted by the identified lead agency or agencies to determine if the Tier 2/Project-level improvement being proposed has the potential to impact cultural resources. If the proposed Tier 2/Project-level improvement has the potential to impact cultural resources, a qualified cultural resources specialist shall conduct a cultural resources assessment report to document the existing cultural resources within the Tier 2/Project-level Study Area. The report may include, but not be limited to, the following:

- Survey and inventory for archaeological resources, including those determined to be tribal cultural resources, including a review of updated information for the applicable cultural information center and other data repositories.
- Survey and inventory for historic, built-environment resources, including a review of updated information for the applicable cultural information center and other data repositories.
- All identified cultural resources shall be recorded using the appropriate California Department of Parks and Recreation cultural resources recordation forms.

- Cultural resources shall be evaluated for eligibility for inclusion in the National Register of Historic Places and California Register of Historical Resources, and evaluations shall be conducted by individuals who meet the Secretary of the Interior’s professional qualification standards in archaeology, history, and/or architectural history.
- Documentation of Tier 2/Project-level Section 106 and Assembly Bill 52 Native American consultation efforts and site-specific recommendations and input received from Native American tribes including but not limited to:
 - The provision of Native American monitors on site during ground disturbance activities
 - Identification of procedures regarding repatriation of cultural items
 - Notification and early coordination with the Bureau of Indian Affairs (BIA) and applicable Tribal Historic Preservation Officers for Tier 2/Project-level fieldwork and surveys occurring within Native American reservation lands.

If the resource is found to be a historical resource/historic property, the agency carrying out implementation of the Tier 2/Project-level improvement shall be required to identify and implement site-specific mitigation if the Tier 2/Project-level improvement has a substantial adverse change to the resource, including physical damage, destruction, relocation, or alteration of the property that materially alters in an adverse manner those physical characteristics of the property that convey its significance for inclusion in or eligibility for the NRHP, California Register of Historical Resources, or local register. These Tier 2/Project-level site-specific mitigation measures shall be developed in coordination with applicable Section 106 and AB 52 consultation requirements.

3.14 Parklands and Community Services

3.14.1 Introduction

This section identifies parklands and community facilities within the Tier 1/Program EIS/EIR Study Area and evaluates the effects of the Build Alternative Options on parklands and community facilities. Chapter 5 of this Tier 1/Program EIS/EIR discusses impacts on publicly owned parks and recreation areas protected under Section 4(f) and Section 6(f).

3.14.2 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 parklands and community facilities 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

Federal Land Policy and Management Act

The Federal Land Policy and Management Act (43 USC Section 1701 et seq.) provides for the proper management and protection of property and natural and cultural resources within areas under the jurisdiction of the BLM, including national monuments, federal recreation areas, and conservation areas. The act aims to ensure that public lands be managed in a manner that protects the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values that, where appropriate, preserve and protect certain public lands in their natural condition; provide food and habitat for fish and wildlife and domestic animals; and provide for outdoor recreation and human occupancy and use.

State

Park Preservation Act

The Park Preservation Act (California PRC Sections 5400–5409) prohibits local and state agencies from acquiring any property that is in use as a public park at the time of acquisition, unless the acquiring agency pays sufficient compensation or land, or both, to enable the operator of the park to replace the park land and any park facilities on that land.

Regional

Los Angeles County 2035 General Plan

The *Los Angeles County 2035 General Plan* (County of Los Angeles 2015) includes a Parks and Recreation Element, which provides policy direction for the maintenance and expansion of the county's parks and recreation system, including Policy P/R 5.3: Protect and conserve natural resources on county park properties, including natural areas, sanctuaries, and open space preserves.

Orange County General Plan

The *Orange County General Plan* (Orange County 2015) contains a Recreation Element which contains policies and goals pertaining to the acquisition, development, operation, maintenance, and financing of the county's facilities, including regional recreation facilities, local parks, and riding and hiking trails.

County of Riverside General Plan

The *County of Riverside General Plan* (County of Riverside 2015) has several goals and policies for parks, recreation, and community services, including Goal LU 4.1(p): Require that new development be designed to provide adequate space for pedestrian connectivity and access, recreational trails, vehicular access and parking, supporting functions, open space, and other pertinent elements.

County of San Bernardino General Plan

The County of San Bernardino General Plan (County of San Bernardino 2014) has several goals and policies for parks and community services, including Goal LU 8: Beneficial facilities, such as schools, parks, medical facilities, sheriff and fire stations, libraries, and other public uses, as well as potentially hazardous sites, would be equitably distributed throughout the county.

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.

3.14.3 Methods for Evaluating Environmental Effects

The methodology for this evaluation consists of using existing data to identify parklands and community facilities 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, parklands are defined as lands that have been officially designated as protected areas by a federal, state, or local agency for the purpose of recreation or conservation. Parklands may contain trails, ball fields, and other recreational resources that can also exist independently. For purposes of this Tier 1/Program EIS/EIR evaluation, community services include police, fire, schools, hospitals, and places of worship.

Potential effects were identified based on proximity of anticipated direct effects (e.g., land acquisition, limited access, or pedestrian barriers) or indirect effects (e.g., increased noise, air quality). Available data was overlaid using available GIS data to map parklands and community facilities and/or service providers in the Tier 1/Program EIS/EIR Study Area, including those that could be affected by development of planned stations.

Tier 1/Program EIS/EIR Study Area

This service-level evaluation is limited to a desktop evaluation of the data sources described in Section 3.14.3. The Tier 1/Program EIS/EIR Study Area was combined with GIS overlays to identify potential parklands and community facilities that could be affected by the Program. These potential parklands and community facilities 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 Sources

Data from the BLM, California Department of Parks and Recreation, California Protected Areas, available county GIS data and general plans, and Google Earth Pro were used to conduct an inventory of parklands and community facilities located within the Tier 1/Program EIS/EIR Study Area.

Related Resources

This evaluation incorporates data from related resources to contribute to the assessment of parklands and community facilities, as applicable. These related resources are identified in Table 3.14-1.

Table 3.14-1. Related Resource Inputs for Parklands and Community Facilities

Resource	Input for Parklands and Community Facilities Assessment
Land Use and Planning (Section 3.2)	A land use assessment to determine existing land uses and recreational areas.
Noise and Vibration (Section 3.6)	An assessment to determine noise and vibration effects.
Section 4(f) and 6(f) Discussion (Chapter 5)	An assessment of 49 USC Section 303, Section 4(f), and Section 6(f) federal parklands and recreational facilities.

Notes:

USC=United States Code

3.14.4 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. Numerous parks, recreational areas, and community facilities open to the public are located within the Tier 1/Program EIS/EIR Study Area. Figure 3.14-1 provides a visual representation of parklands, open spaces, and community facilities within the Tier 1/Program EIS/EIR Study Area.

Build Alternative Option 1 (Coachella Terminus)

As summarized in Table 3.14-2, there are 25 recreational resources consisting of local and regional parks, trails, and sports complexes within the Western Section of Build Alternative Option 1. The majority of community facilities within the Western Section of Build Alternative Option 1 are places of worship, followed by parks and trails.

As summarized in Table 3.14-2, there are 20 recreational resources consisting of local and regional parks, trails, and sports complexes within the Eastern Section of Build Alternative Option 1. Of the 20 recreational resources, there is a recreational open space area jointly managed by the U.S. Forest Service and BLM: the Santa Rosa-San Jacinto Mountains National Monument. As shown on Figure 3.14-1, a portion of the Tier 1/Program EIS/EIR Study Area between the Pass-Area Station Area and the Mid-Valley Station Area crosses through the boundaries of the Santa Rosa-San Jacinto Mountains National Monument. In addition, the Pacific Crest Trail, which is a natural surface hiking trail that follows a natural drainage and traverses the Santa Rosa-San Jacinto Mountains National Monument, crosses under Build Alternative Option 1 in the San Gorgonio Pass area.

Similar to the Western Section, the majority of community facilities within the Eastern Section of Build Alternative Option 1 are places of worship, followed by parks and trails.

Table 3.14-2. Summary of Parklands and Community Facilities (Build Alternative Option 1)

Parklands/Community Service Resource	Number of Resources within Western Section	Number of Resources within Eastern Section	Total Number of Resources
Park/trail	25	20	45
Place of worship	40	50	90
Educational facility	11	16	27
Healthcare facility	2	6	8
Fire protection facility	5	4	9
Law enforcement facility	0	6	6

Build Alternative Option 2 (Indio Terminus)

As summarized in Table 3.14-3, there are 25 recreational resources consisting of local and regional parks, trails, and sports complexes within the Western Section of Build Alternative Option 2. The majority of community facilities within the Western Section of Build Alternative Option 2 are places of worship, followed by parks and trails.

As summarized in Table 3.14-3, there are 18 recreational resources consisting of local and regional parks, trails, and sports complexes within the Eastern Section of Build Alternative Option 2. As identified for Build Alternative Option 1, a portion of Build Alternative Option 2 crosses through the Santa Rosa-San Jacinto Mountains National Monument and the Pacific Crest Trail. Similar to the Western Section, the majority of community facilities within the Eastern Section of Build Alternative Option 2 are places of worship, followed by parks and trails.

There are fewer parklands and community facilities within Build Alternative Option 2 because of the shorter route alignment and reduced station options.

Table 3.14-3. Summary of Parklands and Community Facilities (Build Alternative Options 2 and 3)

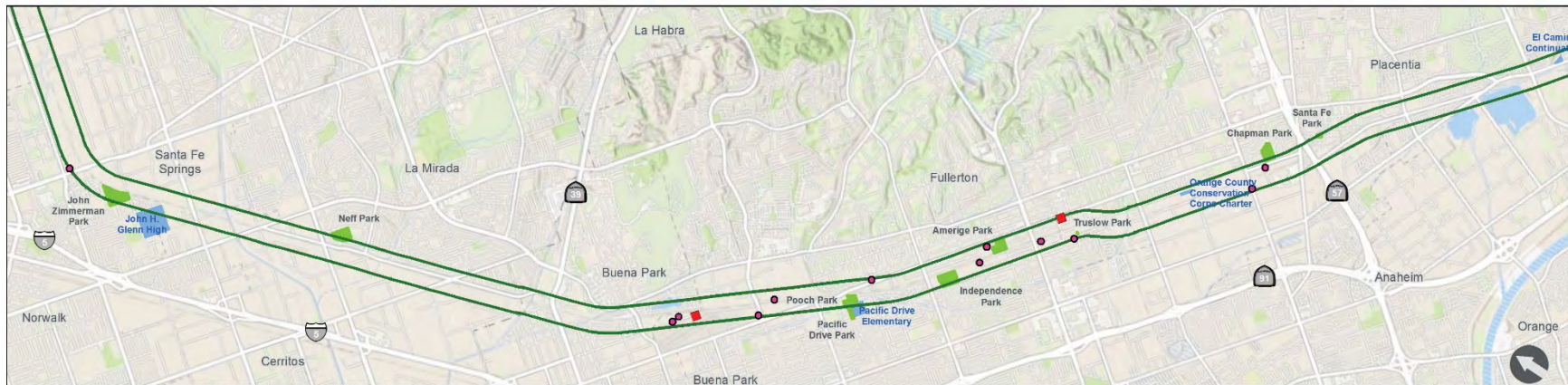
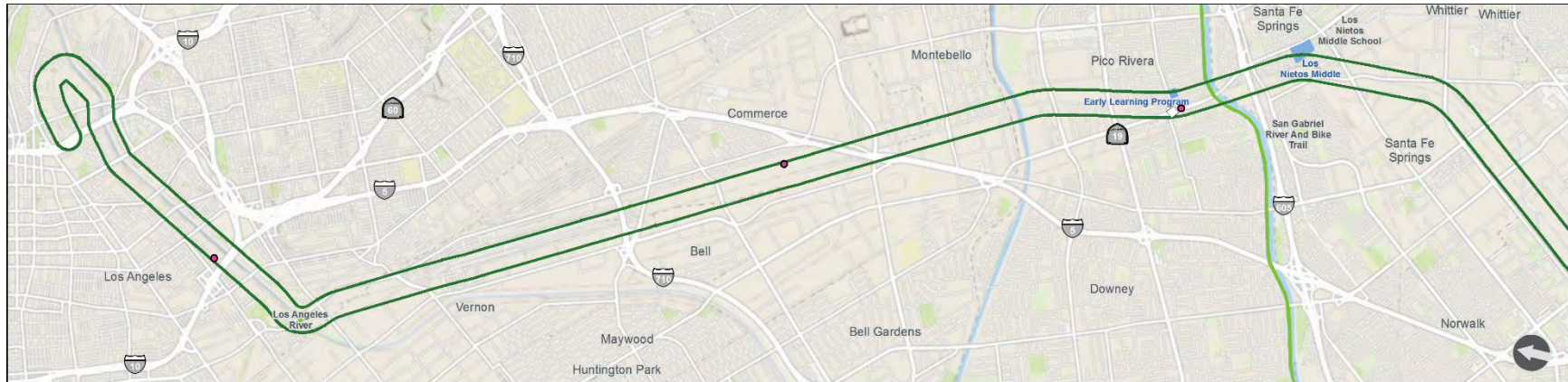
Recreational/Community Service Resource	Number of Resources within Western Section	Number of Resources within Eastern Section	Total Number of Resources
Park/trail	25	18	43
Place of worship	40	45	85
Educational facility	11	12	23
Healthcare facility	2	4	6
Fire protection facility	5	4	9
Law enforcement facility	0	6	6

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

Parklands and community facilities within Build Alternative Option 3 are the same as Build Alternative Option 2.

Figure 3.14-1. Parklands and Community Facilities within the Tier 1/Program EIS/EIR Study Area

(Page 1 of 6)



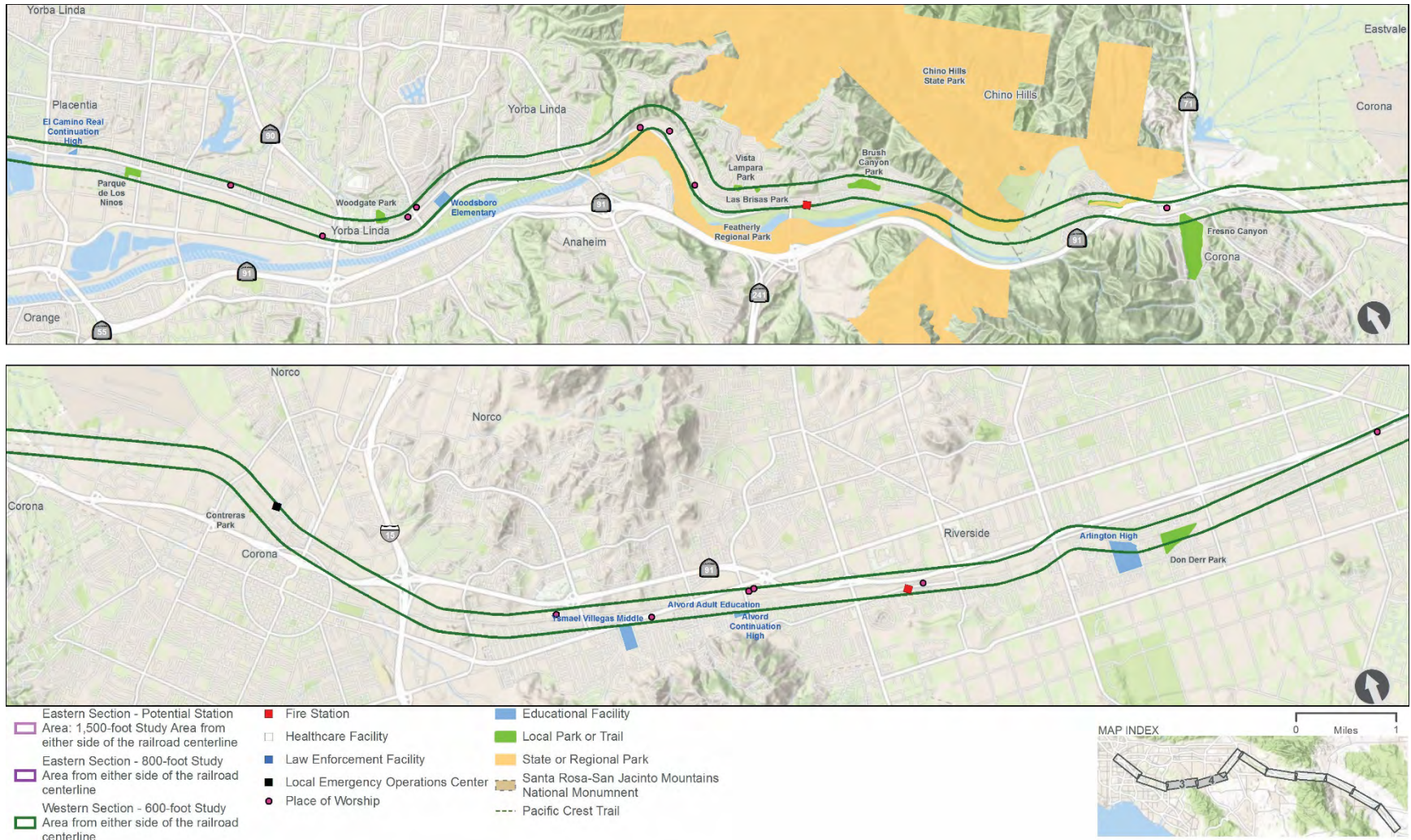
- Eastern Section - Potential Station Area: 1,500-foot Study Area from either side of the railroad centerline
- Eastern Section - 800-foot Study Area from either side of the railroad centerline
- Western Section - 600-foot Study Area from either side of the railroad centerline
- Fire Station
- Healthcare Facility
- Law Enforcement Facility
- Local Emergency Operations Center
- Place of Worship
- Educational Facility
- Local Park or Trail
- State or Regional Park
- Santa Rosa-San Jacinto Mountains National Monument
- Pacific Crest Trail



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Figure 3.14-1. Parklands and Community Facilities within the Tier 1/Program EIS/EIR Study Area

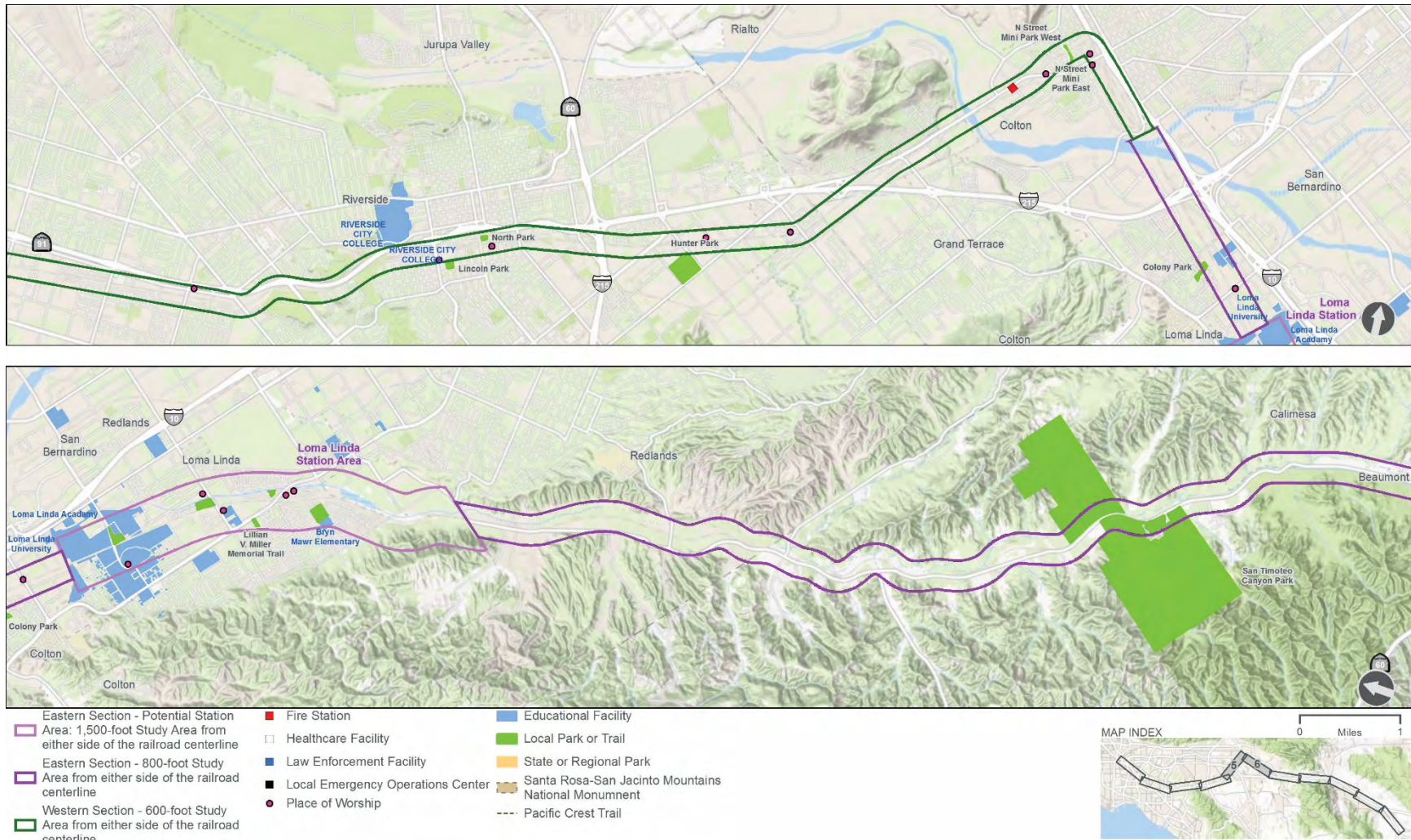
(Page 2 of 6)



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Figure 3.14-1. Parklands and Community Facilities within the Tier 1/Program EIS/EIR Study Area

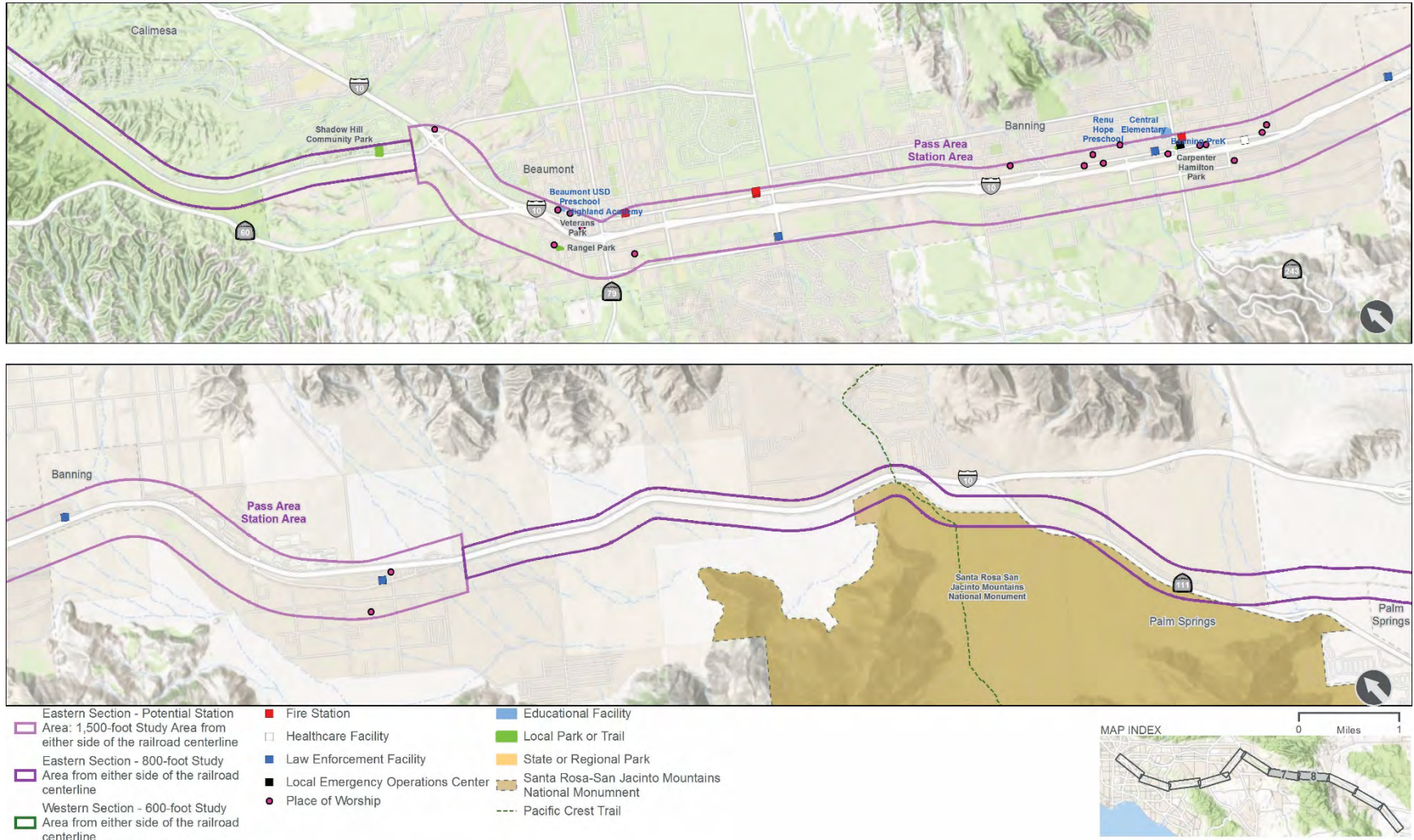
(Page 3 of 6)



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Figure 3.14-1. Parklands and Community Facilities within the Tier 1/Program EIS/EIR Study Area

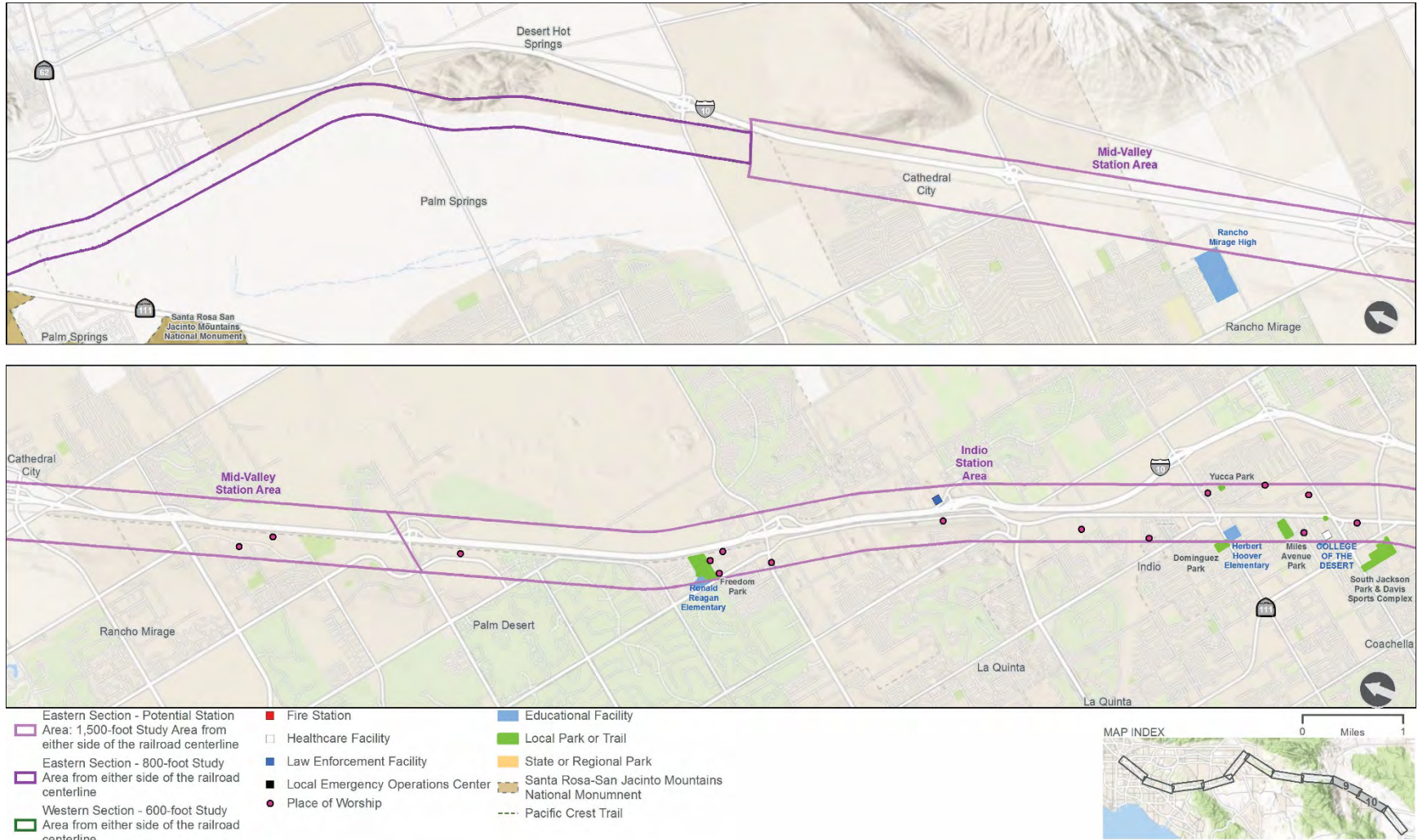
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Figure 3.14-1. Parklands and Community Facilities within the Tier 1/Program EIS/EIR Study Area

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Figure 3.14-1. Parklands and Community Facilities within the Tier 1/Program EIS/EIR Study Area

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3.14.5 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 parklands and community facilities would be anticipated as a result of constructing any of the Build Alternative Options. Most effects on parklands and community facilities would occur during construction when land acquisitions, detours, construction noise and vibration, and air quality impacts could adversely impact parklands and community facilities, including fire protection and police protection emergency response times.

Impacts could also result from operation of any of the Build Alternative Options. New station areas could result in land use changes, such as transit-oriented development, which would introduce the potential for increased population and use of parks and demand for public services. Parklands and community facilities potentially affected by a future passenger rail system would be further identified as part of the Tier 2/Project-level environmental review process. Specific types and degrees of impacts on individual resources (such as ROW acquisition and impacts on characteristics of a resource) would not be known until further design of rail facilities takes place.

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. Counties and cities in the Program Corridor would continue to grow, which would increase regional transportation demand; therefore, the No Build Alternative assumes completion of those reasonably foreseeable transportation, development, and infrastructure projects that are already in progress, are programmed, or are included in the fiscally constrained RTP. However, because no physical changes would occur, no effects on parklands and community facilities are anticipated within the Program Corridor under the No Build Alternative.

Build Alternative Options 1, 2, and 3

Parkland and Community Services 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 parklands and community 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. Construction of rail infrastructure improvements and station facilities could result in temporary effects on existing parklands and community facilities if the resources are near where an infrastructure improvement or station is being constructed. Impacts of this type might include increases in dust from ground disturbance; views of, and noise from, construction equipment; access restrictions; and temporary construction staging. These impacts would be short-term and temporary, as they would occur only during construction. Construction activities may also result in detours, which could affect travel patterns for fire and law enforcement.

Potential effects on parklands and community facilities could also occur if the infrastructure improvements, such as sidings, additional main line track, wayside signals, drainage, grade-separation structures, and stations would require any land acquisitions from existing parks (avoidance of these resources is usually favored). New station areas proposed under the Build Alternative Options could result in land use changes, such as transit-oriented development, which would introduce the potential for increased population and use of parks and public services. Therefore, effects associated with the Eastern Section of Build Alternative Option 1 on parklands and community facilities would be moderate when compared with the No Build Alternative. When compared with Build Alternative Option 1, Build Alternative Option 2 would have slightly reduced effects on parklands and community facilities due to a shorter route alignment and reduced station options. However, the magnitude of effects would be similar and would be considered to be 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 would be considered moderate when compared with the No Build Alternative.

Since infrastructure improvement and new station locations have not yet been selected, site-specific construction effects on parklands and community services would be considered during Tier 2/Project-level analysis once details for the needed rail and station infrastructure are known.

OPERATION

Western Section. As discussed in Section 3.6, Noise and Vibration, of this Tier 1/Program EIS/EIR, no noise or vibration effects are anticipated in the Western Section as a result from operation of any of the Build Alternative Options. The additional train trips would travel within an existing railroad ROW and would not affect fire or police response times or service, parks, or schools when compared with the No Build Alternative. Operation of Build Alternative Option 1, 2, or 3 within the Western Section would not result in increased use of recreational facilities or require new or additional government or recreational facilities when compared with the No Build Alternative.

Eastern Section. As discussed in Section 3.6, Noise and Vibration, of this Tier 1/Program EIS/EIR, noise or vibration effects are anticipated to be moderate in the Eastern Section as a result from operation of any of the Build Alternative Options. Operation of the new railroad infrastructure and stations under the Build Alternative Options would not be anticipated to require new or physically altered fire stations, police stations, schools, or other public facilities or parks. Since infrastructure improvements and new station locations have not yet been selected, site-specific operational effects, including noise effects, on parklands and community services would be considered during Tier 2/Project-level analysis.

Effects associated with the Eastern Section of Build Alternative Option 1 on parklands and community facilities would be moderate when compared with the No Build Alternative. When compared with Build Alternative Option 1, Build Alternative Option 2 would have slightly reduced effects on parklands and community facilities due to a shorter route alignment and reduced station options. However, the magnitude of effects would be similar and would be considered to be 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 would be considered moderate when compared with the No Build Alternative.

3.14.6 NEPA Summary of Potential Effects

Table 3.14-4 summarizes 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 parklands and community facilities that may be affected and the relative magnitude of the effect. For parklands and community facilities, the level of intensity for effects is based on the number of parklands and community facilities potentially affected and that most effects can be mitigated. Specific mitigation measures to reduce effects would be identified during the Tier 2/Project-level environmental process.

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Table 3.14-4. NEPA Summary of Effects on Parklands and Community Facilities

Alternative Option	Total Number of Resources	Park/Trail	Place of Worship	Educational Facility	Healthcare Facility	Fire/Law Enforcement Facility	Potential Intensity of Effect: Western Section	Potential Intensity of Effect: Eastern Section
No Build Alternative ^a	0	0	0	0	0	0	Construction: None Operation: None	Construction: None Operation: None
Build Alternative Option 1 (Coachella Terminus)	185	45	90	27	8	15	Construction: Negligible Operation: Negligible	Construction: Moderate Operation: Moderate
Build Alternative Option 2 (Indio Terminus)	172	43	85	23	6	15	Construction: Negligible Operation: Negligible	Construction: Moderate Operation: Moderate
Build Alternative Option 3 (Indio Terminus with Limited Third Track)	172	43	85	23	6	15	Construction: Negligible Operation: Negligible	Construction: Moderate Operation: Moderate

Notes:

- ^a The No Build Alternative includes existing and potential expansion of roadway, passenger rail, and air travel facilities within the Tier 1/Program EIS/EIR Study Area; however, for the service-level evaluation, identifying levels of effect from potential expansion of those facilities is speculative and would be dependent on Tier 2/Project-level evaluation.

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3.14.7 CEQA Summary of Potential Impacts

Based on the information provided in Section 3.14.3 and 3.14.5, and considering the CEQA Guidelines Appendix G Checklist questions for public services and recreation, the Build Alternative Options are considered to have a potentially significant impact on public services and recreation when reviewed on a Program-wide basis. Placing the infrastructure improvements and new stations largely within or along the existing ROW reduces the potential for significant impacts on these resources; however, because the sites have not been selected, some public services and recreation resources may be significantly impacted. At the Tier 1/Program evaluation level, it is not possible to know the precise location, extent, and particular characteristics of impacts on these resources.

Proposed programmatic mitigation strategies, discussed in Section 3.14.8, would be applied to reduce potential impacts. Table 3.14-5 describes the CEQA significance conclusions for the Build Alternative Options; the proposed programmatic mitigation strategies that would be applied to minimize, reduce, or avoid potential impacts; and the significance determination after mitigation strategies are applied. The identification and implementation of additional site-specific mitigation measures necessary for Project implementation would occur as part of the Tier 2/Project-level analysis.

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Table 3.14-5. CEQA Summary of Impacts for Parklands and Community Services

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Would the Program result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:</p> <ul style="list-style-type: none"> <i>i. Fire protection?</i> <i>ii. Police protection?</i> <i>iii. Schools?</i> <i>iv. Parks?</i> <i>Other public facilities?</i> 		
<p>Construction</p>		
<p>Western Section – No Impact. No impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level because no physical improvements are proposed or required in the Western Section under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – Potentially Significant. Potential impacts on public services depend on the location of infrastructure improvements, which are currently not known. Construction activities may result in detours that could impact accessibility, travel patterns, and response times for fire and police protection. Construction of infrastructure improvements could result in temporary access disruption to existing community facilities and parks. Changes to the road network that may impact public services would be coordinated with fire, police, and agencies with jurisdiction to maintain access and not degrade response times.</p> <p>There could also be temporary noise, vibration, and air quality effects that could affect parklands or community facilities within the Tier 1/Program EIS/EIR Study Area for Build Alternative Option 1, 2 or 3. Site-specific impacts would be considered during the Tier 2/Project-level analysis.</p>	<p>LU-2</p>	<p>Potentially Significant. Although LU-2 would minimize, reduce or, avoid potential impacts on public services through the implementation of a construction management plan, impacts could remain potentially significant if avoidance of public service resources is not feasible during the Tier 2/Project-level planning and design phase.</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Operation		
<p>Western Section – No Impact. The change in train service (an additional two daily trips within the Program Corridor) would not change existing land use that would result in modifications to existing public service or park facilities. No impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level because no physical improvements are proposed or required in the Western Section under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – Less than Significant. Once construction is completed, the operation of an additional two daily train trips within the Program Corridor would not require construction or expansion of existing public service facilities. A less than significant impact is anticipated at the Tier 1/Program EIS/EIR evaluation level in the Eastern Section under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p><i>Would the Program increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?</i></p>		
Construction		
<p>Western Section – No Impact. The change in train service (an additional two daily trips within the Program Corridor) would not change existing land use that would result in an increased use of existing park facilities within the Western Section. No impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level because no physical improvements are proposed or required in the Western Section under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<p>Eastern Section – Less Than Significant. Construction of the Program, including site preparation and building phases, would temporarily increase construction employment. However, given the relatively common nature and scale of construction associated with the Program, the demand for construction employment would likely be met within the local and regional labor market throughout Southern California. The size of the construction workforce would vary during the different stages of construction; however, a substantial number of workers from outside the region would not be expected to relocate permanently. Therefore, Program construction would not result in a significant increase in the use of existing recreational facilities under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Operation</p>		
<p>Western Section – No Impact. The change in train service (an additional two daily trips within the Program Corridor) would not change existing land use or increase in population that would result in increased use of existing park facilities. Therefore, no impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level in the Western Section under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>
<p>Eastern Section – Potentially Significant. Implementation of the Program under Build Alternative Option 1, 2, or 3 in the Eastern Section would result in the operation of passenger rail service. The improvements envisioned include various rail infrastructure and station facilities and are not anticipated to result in population growth that would increase the use of recreational facilities in the area. However, in the event that station facilities include a transit-orientated development component, there is the potential for an increase in use at existing recreational resources. Site-specific impacts and mitigation measures, to the extent required, would be identified and discussed during the Tier 2/Project-level after design details are known.</p>	<p>PCS-1</p>	<p>Less than Significant. If development around station areas is consistent with land use plans for station areas as required by PCS-1, impacts would be reduced to less than significant.</p>

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Would the Program include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?		
Construction		
Western Section – No Impact. No impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level because no physical improvements are proposed or required in the Western Section under Build Alternative Option 1, 2, or 3.	Not applicable	Not applicable
Eastern Section – Potentially Significant. Although the Program would not include recreational facilities as part of the proposed improvements, there is the potential for the Build Alternative Options to require expansion of recreational facilities in the event that the proposed improvements require a physical take of park property. Potential impacts on recreational facilities depend on the location of infrastructure improvements, which are currently unknown. Site-specific impacts and mitigation measures, to the extent required, would be identified and discussed during the Tier 2/Project-level analysis after design details are known.	PCS-1 LU-3	Potentially Significant. Although PCS-1 and LU-3 would result in additional coordination with agencies to avoid or minimize the potential for parkland impacts, impacts could remain potentially significant if avoidance of recreational resources is not feasible during the Tier 2/Project-level planning and design phase.
Operation		
Western Section – No Impact. The change in train service (an additional two daily trips within the Program Corridor) would not require construction or expansion of existing recreational facilities. No impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level in the Western Section under Build Alternative Option 1, 2, or 3.	Not applicable	Not applicable
Eastern Section – Less than Significant. Once construction is completed, the operation of an additional two daily train trips within the Program Corridor would not require construction or expansion of existing recreational facilities. A less than significant impact is anticipated at the Tier 1/Program EIS/EIR evaluation level in the Eastern Section under Build Alternative Option 1, 2, or 3.	Not applicable	Not applicable

Notes:

EIS/EIR=environmental impact statement/environmental impact report

3.14.8 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.

Examples of programmatic mitigation strategies for recreational and community facilities would include a construction management plan and station areas planned consistent with local land use plans. Proposed programmatic mitigation strategies, consistent with state and federal regulations, include, but are not limited to, the following:

Mitigation Strategy PCS-1: During Tier 2/Project-level analysis, recreational resources that would be impacted by the site-specific rail infrastructure improvement or station facility shall be identified, and any physical take of recreational properties shall be evaluated. Measures to avoid or minimize impacts on recreational properties shall include, but are not limited to, the following:

- Selection of rail station locations that avoid recreational resources
- Moving equipment and facilities to another located within existing parkland
- Planting vegetation to offset removed vegetation or to establish visual or auditory screening

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 resources 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.

3.15 Safety and Security

3.15.1 Introduction

This section provides an evaluation of safety- and security-related effects associated with the No Build Alternative and Build Alternative Options. Safety relates to the prevention of unintentional harm, such as from accidents, to the public and employees during construction and operation of the passenger rail system. Security relates to the protection of people and property from intentional acts that could injure or harm them.

3.15.2 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 potential safety- and security-related effects within the Tier 1/Program EIS/EIR Study Area and evaluated the potential impacts on safety and security from implementation of the Build Alternative Options.

Federal

Federal Railroad Administration Rail Safety Improvement Act of 2008

The Rail Safety Improvement Act of 2008 (RSIA) was a response to fatal rail accidents between 2002 and 2008. The RSIA reauthorized FRA to oversee the nation's rail safety program between 2009 and 2013. The RSIA required the implementation of PTC systems to prevent further train-to-train collisions along specific rail lines by the end of 2015. Additionally, the RSIA aims to improve conditions of rail bridges and tunnels. The RSIA governs hours of service for workers, standards for track inspection, conductor certification, and highway grade crossings.

Federal Railroad Administration System Safety Program (49 Code of Federal Regulations Part 270)

This regulatory program requires commuter and intercity passenger railroads to develop and implement a system safety program to improve the safety of their operations. An SSP is a structured program with proactive processes and procedures, developed and implemented by railroads to identify and mitigate or eliminate hazards to reduce the number and rates of railroad accidents, incidents, injuries, and fatalities.

Fixing America's Surface Transportation Act (23 United States Code 11313[b])

The Fixing America's Surface Transportation Act governs U.S. federal surface transportation spending. Section 11313(b) provides guidance on systematic processes of identifying, quantifying, and comparing expected benefits and costs (including safety benefits).

United States Code on Railroad Safety (49 United States Code 20101 et seq.)

Part A of Subtitle V of Title 49 of USC (49 USC Sections 20101 et seq.) contains a series of statutory provisions affecting the safety of railroad operations. Section 20109 of the act protects the reporting of safety concerns and injuries and prohibits railroads from disciplining, discharging, or retaliating in any form against employees who engage in protected activities. This section also prohibits the delay or interference of an injured employee's treatment.

United States Department of Defense (Railroads for National Defense Program)

In coordination with FRA, the Military Traffic Management Command Transportation Agency established the Railroads for National Defense Program to identify defense rails requirements and assure consideration for national defense in civil railroad policies, plans, and programs. As part of this program, certain railroad corridors were designated by the U.S. Department of Defense as part of the Strategic Rail Corridor Network (STRACNET). STRACNET is an interconnected and continuous rail line network consisting of over 38,000 miles of track serving over 170 defense installations. Railroads designated for STRACNET must comply with defense readiness requirements, including maintenance conditions, clearance, operating speeds, and gross weight capabilities.

United States Department of Homeland Security/Transportation Security Administration

The Transportation Security Administration provides Security Directives for Passenger Rail, including directives for rail transportation operators to implement certain protective measures and report potential threats and security concerns to the Transportation Security Administration. The Rail Transportation Security final rule, published on November 26, 2008, describes the Transportation Security Administration's inspection program, including freight railroad carriers; intercity, commuter, and short-haul passenger train service providers; rail transit systems; and rail operations at certain fixed-site facilities that ship or receive specified hazardous materials by rail.

United States Environmental Protection Agency Emergency Planning and Community Right-to-Know Act

The Emergency Planning and Community Right-to-Know Act provides direct guidance to state and local planning for chemical emergencies, provides for notification in the scenario of emergency releases of chemicals, and addresses a community's right-to-know about toxic and hazardous chemicals.

State

California Emergency Services Act (California Government Code Section 8550 et seq.)

The Emergency Services Act supports the state's responsibility to mitigate adverse effects of natural, human-produced, or war-caused emergencies that threaten human life, property, and environmental resources of the state. The act aims to protect human health and safety and to preserve the lives and property of the people of the state. The act provides the California Office of Emergency Services with the authority to prescribe powers and duties supportive of the act's goals. In addition, the act authorizes the establishment of local organizations to carry out the provisions through necessary and proper actions.

California Public Utilities Commission Code Sections 7710–7727, 7661, and 7665 et seq.

CPUC Code Sections 7710–7727 cover railroad safety and emergency planning and response. Under this code, CPUC is required to adopt safety regulations and report sites on railroad lines that are deemed hazardous within California. The Rail Accident Prevention and Response Fund was created in an effort to support prevention regulations financially through fees paid by surface transporters of hazardous materials. In addition, the Railroad Accident Prevention and Immediate Deployment Force was created to provide immediate on-site response in the event of a large-scale unauthorized release of hazardous materials. Modifications of existing highway-rail crossings require CPUC authorization, and temporarily impaired clearance during construction requires application to CPUC and notice to railroads.

Section 7661 requires every railroad corporation operating in the state to develop a protocol for rapid communications with the California Office of Emergency Services, the Department of the California Highway Patrol, and designated county public safety agencies in an endangered area if there is a runaway train or any other uncontrolled train movement that threatens public health and safety. Section 7665 is also known as the Local Community Rail Security Act of 2006 and provides for the security and safety of local communities and local community facilities, to protect local communities from transportation practices that fail to secure rail facilities and equipment from the threat of

terrorism, and to ensure proper communication between the owners and operators of rail facilities and equipment with local and state first responders.

Regional

Goals and policies related to safety and security and applicable to the Build Alternative Options were identified in the Los Angeles, Orange, San Bernardino, and Riverside Counties' general plans.

Los Angeles County 2035 General Plan

Policies in the Mobility Element of the *Los Angeles County 2035 General Plan* (County of Los Angeles 2015) include the following:

- Policy M 1.2: Ensure that streets are safe for sensitive users, such as seniors and children.
- Policy M 2.4: Ensure a comfortable walking environment for pedestrians by implementing the following, whenever appropriate and feasible: safe and convenient crossing locations at transit stations and transit stops located at safe intersections.

Orange County General Plan

One goal of the Transportation Element of the *Orange County General Plan* (Orange County 2005) is to provide a circulation plan that facilitates the safe, convenient, and efficient movement of people and goods throughout unincorporated areas of the county.

County of Riverside General Plan

The Circulation Element of the *Riverside County General Plan* (County of Riverside 2003) states that Riverside County continues to support operation of passenger and freight rail systems that offer efficient, safe, convenient, and economical transport of Riverside County residents and commodities.

County of San Bernardino General Plan

The Transportation and Mobility Element of the *San Bernardino County General Plan* (County of San Bernardino 2014) includes goals for pedestrian, cyclist, and other active transportation infrastructure in mobility focus areas to safely connect neighborhoods and communities to key destinations.

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.

3.15.3 Methods for Evaluating Environmental Effects

Public safety and security is generally evaluated to understand the effects of passenger rail construction and operation on the following:

- Safety of construction workers and the traveling public during construction
- Public safety at railroad-highway crossings
- Safety of train passengers and operators during passenger rail operation
- Effects of construction and operation on emergency response routes and times
- Crime risk at construction sites and within the passenger rail system during operation

This evaluation considers the operational and infrastructure aspects of each of the Build Alternative Options, including the safety and security of passenger rail as a travel mode compared with other modes (motor vehicle and aviation), access to the existing railroad ROW, and how it is secured and maintained. For this Tier 1/Program EIS/EIR evaluation, compliance with current and proposed safety standards and regulations are discussed qualitatively.

Safety and security aspects include the safe operation of the passenger railroad, equipment, and infrastructure (e.g., tracks, structures, systems, stations, yards, etc.), as well as access to the ROW. Safety considerations are consistent with FRA's mission to improve railroad safety and reduce the number of accidents by reducing the number and rates of accidents involving railroad train collisions or derailments, highway-rail grade crossings, trespassers, and railroad infrastructure. A detailed assessment of compliance with safety and security regulations would be considered during the Tier 2/Project-level analysis.

Tier 1/Program EIS/EIR Study Area

This service-level evaluation is limited to a desktop evaluation of the data sources described in Section 3.15.3. A detailed description of the Tier 1/Program EIS/EIR Study Area is provided in Section 3.1, Introduction to Environmental Analysis, of this Tier 1/Program EIS/EIR.

Data Sources

Data from the National Highway Traffic Safety Administration, Bureau of Transportation Statistics, National Transportation Safety Board, California Highway Patrol, FRA, FTA, and Federal Aviation Administration were reviewed to establish the existing conditions for modal safety. A desktop review using Google Earth was conducted to generally understand how the existing railroad ROW is

secured. Federal safety and security rules and design standards were reviewed to determine required design and operational practices for passenger rail systems.

Related Resources

This analysis incorporates data and evaluation from related resources pertaining to safety and security. These related resources are identified in Table 3.15-1.

Table 3.15-1. Related Resource Inputs for Safety and Security Assessment

Resource	Input for Safety and Security Assessment
Transportation (Section 3.3)	Existing and proposed rail operations (including service plans and fleet assumptions) and the corresponding shift or change in ridership was determined.

3.15.4 Affected Environment

FRA defines total accidents/incidents as the sum of train accidents, highway-rail incidents, and other incidents. Train accidents are defined as a safety-related event involving on-track equipment, whether standing or moving, including derailments and collisions (FRA 2014). Highway/rail incidents are defined as involving injuries or fatalities (casualties) but not involving property damage above reportable thresholds. Other incidents include any event other than a highway-rail incident that caused a death, injury, or occupational illness to a railroad employee or that resulted in an injury or fatality, including incidents involving pedestrians in the rail ROW (FRA 2014).

Passenger Rail System Safety

According to data from USDOT Bureau of Transportation Statistics, in 2016 there were 791 deaths in the U.S. due to railroad-related accidents (USDOT Bureau of Transportation Statistics 2017). Unlike highway crashes, boating, or aviation accidents, most fatalities associated with train operations occur outside the train, such as people who are struck by trains while on track ROWs or people in cars struck at highway-rail grade crossings. Very few train passengers or crew members die in train accidents. In the 10-year period from 2007 to 2016, no passengers were killed on a train, but a total of 7,749 people died in railroad accidents or incidents (USDOT Bureau of Transportation Statistics 2017). Several hundred people die every year when struck by trains while on railroad property or ROWs. If they were unauthorized, they are classified as trespassers. Trespassers accounted for 57.2 percent of the total railroad fatalities between 2007 and 2016, an average of 443 deaths per year. Highway-rail grade crossing fatalities averaged about 260 per year in the 2007 to 2016 period, or roughly one-third of the total railroad-related fatalities.

Within the Tier 1/Program EIS/EIR Study Area, the existing railroad ROW is a shared track with the existing UP Yuma Subdivision between Indio and Colton and the BNSF San Bernardino Subdivision from Colton through Riverside and Fullerton before reaching LAUS. Current service frequency and operators are described in Section 2.2.2 of Chapter 2, Program Alternatives, of this Tier 1/Program EIS/EIR. Safety incidents along the existing railroad ROW can include injuries and fatalities associated with incidents at at-grade crossings and trespassing on railroad property. Accidents can involve train collision or derailment.

PTC is a predictive collision avoidance technology designed to stop a train in motion where the continued movement may result in an accident. The RSIA required the implementation of PTC technology across most railroad systems, including the existing railroad ROW, by December 31, 2018.¹ PTC has been implemented for Metrolink service within the Western Section of the Program Corridor.

Build Alternative Option 1 (Coachella Terminus)

Table 3.15-2 summarizes the number of train accidents and incidents for all railroads, freight trains, and Amtrak and commuter trains operating within those counties traversed by Build Alternative Option 1 between 2013 and 2017. Table 3.15-3 summarizes the number of train highway-rail incidents by county for all railroads, freight trains, and Amtrak and commuter trains between 2013 and 2017.

¹ In late 2015, Congress extended the deadline by at least 3 years to December 31, 2018, with the possibility of an extension to a date no later than December 31, 2020, if a railroad completes certain statutory requirements that are necessary to obtain an extension.

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Table 3.15-2. Number of Train Accidents and Incidents by County, 2013–2017

County	Total Accidents/ Incidents ^a	Total Accidents/ Incidents Fatalities	Total Accidents/ Incidents Non-Fatal	Trespasser Deaths ^b	Trespasser Injuries ^b	Train Accidents (Not at Grade-Crossings): Collisions	Train Accidents (Not at Grade-Crossings): Derailments	Train Accidents (Not at Grade-Crossings): Human Factor Caused	Train Accidents (Not at Grade-Crossings): Track Caused	Train Accidents (Not at Grade-Crossings): Motive Power/ Equipment Caused
All Railroads										
Los Angeles	942	81	768	56	51	8	66	59	15	9
Orange	131	25	92	17	7	—	3	2	—	1
San Bernardino	434	30	280	18	41	19	82	41	24	17
Riverside	197	31	136	17	18	—	9	4	3	4
Freight Operations										
Los Angeles	430	29	284	20	40	8	61	56	13	7
Orange	32	8	8	7	2	—	3	2	—	1
San Bernardino	345	21	205	15	39	8	82	41	24	17
Riverside	127	24	75	15	15	—	9	4	3	4
Amtrak and Commuter Railroads										
Los Angeles	515	52	484	36	11	—	7	3	4	2
Orange	99	17	76	10	5	—	—	—	—	—
San Bernardino	91	9	75	3	2	—	2	1	1	—
Riverside	71	7	61	2	3	—	1	1	—	—

Source: FRA Office of Safety Analysis 2018a, 2018b

Notes:

^a Total accidents is the sum of train accidents, crossing incidents, and other accidents/incidents as reported in FRA Tables 1.2 and 1.3 (FRA Office of Safety Analysis 2018a, 2018b)^b Not at highway-rail crossing

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Table 3.15-3. Number of Train Highway-Rail Incidents by County, 2013–2017 (Build Alternative Options 1, 2, and 3)

County	Total Highway-Rail Incidents	Highway-Rail Incident Deaths	Highway-Rail Incident Injuries	Incidents at Public Crossings
All Railroads				
Los Angeles	120	21	78	104
Orange	22	8	4	20
San Bernardino	48	7	12	43
Riverside	39	12	9	38
Freight Operations				
Los Angeles	73	6	33	57
Orange	7	1	2	7
San Bernardino	33	2	11	28
Riverside	30	7	7	29
Amtrak and Commuter Railroads				
Los Angeles	47	15	45	47
Orange	15	7	2	13
San Bernardino	15	5	1	15
Riverside	9	5	2	9

Source: FRA Office of Safety Analysis 2018a, 2018b

Build Alternative Option 2 (Indio Terminus)

Existing passenger rail system safety data and information within Build Alternative Option 2 is the same as Build Alternative Option 1.

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

Existing passenger rail system safety data and information within Build Alternative Option 3 is the same as Build Alternative Option 1.

Grade Crossing Safety

At-grade crossings present a risk of collisions between trains and other travel modes, as well as a risk of collisions between vehicles, particularly rear-end-type crashes when vehicles stop at a crossing. Grade-separated crossings eliminate this type of safety risk because trains are separated from other travel modes.

Build Alternative Option 1 (Coachella Terminus)

Table 3.15-4 summarizes the number of at-grade railroad crossing incidents for all cities crossed by the existing railroad ROW between 2013 and 2017. A total of 101 at-grade crossing incidents occurred in the 32 cities crossed by the existing railroad ROW between 2013 and 2017. Of these, 53 occurred within the Tier 1/Program EIS/EIR Study Area, with 18 fatalities, 17 injuries, and 33 incidents with property damage.

Table 3.15-4. Number of At-Grade Incidents by City for All Railroads, 2013–2017 (Build Alternative Options 1, 2, and 3)

City	Total Accidents/ Incidents	Total within the Tier 1/ Program EIS/EIR Study Area	Incidents with Fatalities within the Tier 1/ Program EIS/EIR Study Area	Incidents with Injuries within the Tier 1/ Program EIS/EIR Study Area	Incidents with Property Damage within the Tier 1/ Program EIS/EIR Study Area
Los Angeles	30	2	—	—	2
Vernon	6	3	—	3	3
Commerce ^a	—	—	—	—	—
Montebello	3	1	—	1	—
Pico Rivera	2	—	—	—	—
Santa Fe Springs	11	11	5	2	7
Norwalk ^a	—	—	—	—	—
La Mirada	3	1	—	1	1
Buena Park ^a	—	—	—	—	—
Fullerton ^a	—	—	—	—	—

City	Total Accidents/ Incidents	Total within the Tier 1/ Program EIS/EIR Study Area	Incidents with Fatalities within the Tier 1/ Program EIS/EIR Study Area	Incidents with Injuries within the Tier 1/ Program EIS/EIR Study Area	Incidents with Property Damage within the Tier 1/ Program EIS/EIR Study Area
Anaheim	6	3	—	1	3
Placentia	3	3	2	1	1
Yorba Linda ^b	—	—	—	—	—
Chino Hills ^b	—	—	—	—	—
Corona	9	9	4	2	3
Riverside	20	16	5	6	11
Grand Terrace	2	1	1	—	1
Colton	1	1	—	—	1
San Bernardino	3	—	—	—	—
Loma Linda ^a	—	—	—	—	—
Redlands ^a	—	—	—	—	—
Calimesa ^a	—	—	—	—	—
Beaumont ^a	—	—	—	—	—
Banning	1	1	—	—	—
Cabazon	1	1	1	—	—
Palm Springs ^a	—	—	—	—	—
Cathedral City ^b	—	—	—	—	—
Thousand Palms ^a	—	—	—	—	—
Rancho Mirage ^a	—	—	—	—	—
Palm Desert ^a	—	—	—	—	—

City	Total Accidents/ Incidents	Total within the Tier 1/ Program EIS/EIR Study Area	Incidents with Fatalities within the Tier 1/ Program EIS/EIR Study Area	Incidents with Injuries within the Tier 1/ Program EIS/EIR Study Area	Incidents with Property Damage within the Tier 1/ Program EIS/EIR Study Area
Indio ^b	—	—	—	—	—
Coachella ^a	—	—	—	—	—

Source: FRA Office of Safety Analysis 2018c

Notes:

^a No accidents/incidents reported from 2013/2017

^b No public crossings at-grade

EIR=environmental impact report; EIS=environmental impact statement

Build Alternative Option 2 (Indio Terminus)

Existing grade crossing data and information within Build Alternative Option 2 is the same as Build Alternative Option 1.

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

Existing grade crossing data and information within Build Alternative Option 3 is the same as Build Alternative Option 1.

Crime Prevention and Security

As mentioned above, security refers to how the railroad ROW and station areas are secured and access to the ROW maintained within the Program Corridor.

Build Alternative Option 1 (Coachella Terminus)

Starting in the west, from LAUS to the Fullerton Transportation Center, the existing railroad ROW within Build Alternative Option 1 is intermittently secured by fencing and property walls. In the developed areas in San Bernardino and Riverside Counties, the existing railroad ROW is generally secured with fencing and property walls. From the City of Loma Linda to the eastern terminus of Coachella, the existing railroad ROW is generally unsecured with some areas secured by fencing, short-wire and wood-post fencing, or residential property boundary walls. The existing at-grade crossings within the Tier 1/Program EIS/EIR Study Area also have various forms of warning devices, such as gate arms, signs/signals, pavement markings, mast-mounted flashing lights, and alarm bells.

Existing stations within the Program Corridor generally have close-circuit security cameras, roving code enforcement or compliance inspectors, and a transit security force. Additionally, signs with phone numbers are posted at stations for use if transit patrons or the general public observe suspicious activity within the station areas. Consistent with current transit provider policies, anyone observed by the roving code enforcement inspectors in fare paid areas without proof of a paid fare would be asked to leave the premises.

The entire Program Corridor from LAUS to Coachella is classified as part of STRACNET. The Military Traffic Management Command Transportation Engineering Agency and FRA requires STRACNET rail lines to meet defense readiness requirements, including maintenance conditions, clearance, operating speeds, and gross-weight capabilities.

Build Alternative Option 2 (Indio Terminus)

Existing crime prevention and security features within Build Alternative Option 2 are the same as Build Alternative Option 1.

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

Existing crime prevention and security features within Build Alternative Option 3 are the same as Build Alternative Option 1.

3.15.5 Environmental Consequences

Overview

This service-level evaluation describes the effects of the Build Alternative Options on the safety of the passenger rail system, grade crossings, pedestrians and bicyclists, trespassing, rail safety and transport of hazards materials, crime prevention and security, community emergency response services, and seismic safety. Certain safety and security topics (such as community emergency response services and seismic safety) have already been discussed in other Tier 1/Program EIS/EIS sections and are referenced as appropriate. 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 safety and security would be anticipated as a result of constructing any of the Build Alternative Options.

No Build Alternative

The No Build Alternative, as described in Chapter 2, Program Alternatives, of this Tier 1/Program EIS/EIR, is used as the baseline for comparison. The No Build Alternative would not implement the Program associated with this service-level evaluation. Several existing and committed transportation improvement projects would still occur in the Program Corridor under the No Build Alternative.

Under the No Build Alternative, the Los Angeles Basin and San Gorgonio Pass would continue to face substantial mobility challenges as growth in population, employment, and tourism activity is anticipated to generate increased travel demand. With the growth in population, employment, and tourism activity, traffic volumes in the Los Angeles Basin and San Gorgonio Pass would likely increase, contributing to a likely increase in traffic accidents. In addition, with increases in traffic volumes, the potential for crossing conflicts on existing rail lines would also likely increase.

Build Alternative Options 1, 2, and 3

Passenger Rail System Safety Effects

CONSTRUCTION

Western Section. The Build Alternative Options would not require construction of additional rail or station infrastructure in the Western Section because the existing railroad infrastructure and stations from LAUS to Colton would be used. When compared with the No Build Alternative, short-term and temporary effects related to passenger rail system safety would be negligible because no additional construction activities are planned within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Construction of rail infrastructure improvements, such as sidings, additional main line track, wayside signals, drainage, grade-separation structures, and stations could require temporary closure of lanes, sidewalks, bicycle lanes and routes, driveways, streets, and freeway lanes. All construction activities affecting roadways, bicycle paths, and pedestrian paths would be required to meet the requirements of the California MUTCD (Caltrans 2020). Once site specifics associated with the rail infrastructure improvement or station facility are known, the Tier 2/Project-level analysis would identify and evaluate where temporary road closures and traffic detours would be needed. Mitigation strategies that require the preparation and implementation of a site-specific transportation management plan would help minimize, reduce, or avoid potential safety effects during construction activities. When compared with the No Build Alternative, short-term and temporary effects related to passenger rail system safety would be moderate within the Eastern Section under Build Alternative Option 1. When compared with Build Alternative Option 1, Build Alternative Option 2 may have slightly reduced effects due to a smaller footprint associated with a

shorter route alignment and reduced station options; however, effects would have the same magnitude 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 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 the Coachella Valley. Operation of the Build Alternative Options in the Western Section would use the existing railroad infrastructure and stations from LAUS to Colton.

The potential exists for passenger rail trains to derail within the Western Section of the Program Corridor; however, derailment is very rare. In case of a derailment, the accident would be communicated to all rail operators in the area and any safety measures and cleanup would be under the control of local jurisdiction emergency responders with assistance from rail operators. The addition of two daily round trips would not change the existing safety and security protocols for passengers, transit employees, and the public in or near the existing passenger rail system or station facilities. The operation of the two daily round trips on passenger trains would require the additional passenger trains to operate in accordance with standard operating procedures, operator rules, and rail emergency plans currently in place within the Western Section. When compared with the No Build Alternative, effects related to passenger rail system safety would be negligible under Build Alternative Options 1, 2, and 3.

Eastern Section. Operation of the any of the Build Alternative Options would implement similar safety and security principles and guidelines currently used by rail operators in the Western Section of the Program Corridor. These safety and security principles and guidelines currently include onboard safety and security programs, such as regular safety meetings for front-line employees, forward-facing camera systems to help aid in accident investigation, and inward-facing cameras for onboard security. In addition, rail operators and transit system providers along the Program Corridor currently coordinate with local police departments for safety and security presence onboard trains and at stations; consider safety improvement projects such as track and signal upgrades, gate and warning systems, and grade separations that eliminate hazards at at-grade crossing; and engage in public awareness campaigns designed to educate the public about the risks of trespassing on railroad property. It is anticipated that operation of the two daily round trips on passenger trains within the Eastern Section would require the additional passenger trains to operate in accordance

with standard operating procedures, operator rules, and rail emergency plans similar to those currently in place within the Western Section.

The potential exists for passenger rail trains to derail within the Eastern Section of the Program Corridor; however, derailment is very rare. In case of a derailment, the accident would be communicated to all rail operators in the area and any safety measures and cleanup would be under the control of local jurisdiction emergency responders with assistance from rail operators. The addition of two daily round trips within the Eastern Section would not change the existing safety and security protocols for passengers, transit employees, and the public in or near the existing passenger rail system or station facilities. The operation of the two daily round trips on passenger trains would require the additional passenger trains to operate in accordance with standard operating procedures, operator rules, and rail emergency plans currently in place within the Eastern Section.

For proposed station facilities, it is anticipated that new station facilities within the Eastern Section would implement a similar safety and security program for station operations. This would include preparation of safety and security management plans to maintain safety of workers and passengers accessing station facilities, worker safety standards, crime prevention design guidelines, safety and health plans, fire/life safety programs, security plans, and emergency procedures.

Implementing project design features or mitigation measures requiring compliance with FRA's *Collision Hazard Analysis Guide: Commuter and Intercity Passenger Service* (FRA 2007) would identify and determine rail and rail facility hazards and vulnerabilities so that they can be addressed and either eliminated or reduced. In addition, intrusion-detection technology or PTC would also alert the presence of inert objects, such as derailed freight trains, helping to avoid collisions.

The existing railroad ROW is equipped with wayside signaling and centralized traffic control. As mentioned above, the RSIA requires the implementation of PTC technology across most railroad systems by December 31, 2018, and PTC is expected to be implemented throughout the existing railroad ROW prior to operation of the Program. Communication towers and ancillary facilities could be included in the existing railroad ROW to implement the FRA PTC requirements. PTC infrastructure would consist of integrated command, control, communications, and information systems for controlling train movements that improve railroad safety by reducing the potential for collisions between trains, casualties to roadway workers and equipment, and over-speed accidents.

For portions of the railroad that are classified as part of the STRACNET network, additional coordination with the U.S. Army's Transportation Engineering Agency and FRA would occur during Tier 2/Project-level analysis to ensure readiness capability to support defense deployment and peacetime needs. A detailed assessment of safety and security onboard trains and stations, as well as how the railroad ROW would be secured and access would be managed, would be considered in

the Tier 2/Project-level analysis once site-specific rail infrastructure or station facility details are known.

When compared with the No Build Alternative, effects related to passenger rail system safety would be moderate within the Eastern Section under Build Alternative Option 1. When compared with Build Alternative Option 1, Build Alternative Option 2 may have slightly reduced effects due to a smaller footprint associated with a shorter route alignment and reduced station options; however, the magnitude of effect 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.

Grade-Crossing Safety Effects

CONSTRUCTION

Western Section. The Build Alternative Options would not require construction of additional rail or station infrastructure in the Western Section because the existing railroad infrastructure and stations from LAUS to Colton would be used. When compared with the No Build Alternative, short-term and temporary effects related to grade crossing safety would be negligible because no additional construction activities are planned within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Construction of rail infrastructure improvements, such as sidings, additional main line track, wayside signals, drainage, grade-separation structures, and stations could require temporary closure of lanes, sidewalks, bicycle lanes and routes, driveways, streets, and freeway lanes near existing grade crossings. All construction activities affecting roadways, bicycle paths, and pedestrian paths would be required to meet the requirements of the California MUTCD (Caltrans 2020). Once site specifics associated with rail infrastructure improvement or station facilities are known, the Tier 2/Project-level analysis would identify and evaluate where temporary road closures and traffic detours would be needed and if those closures and detours would impact existing grade crossings. Mitigation strategies that require the preparation and implementation of a site-specific transportation management plan would help minimize, reduce, or avoid potential grade-crossing effects during construction activities. When compared with the No Build Alternative, short-term and temporary effects related to grade-crossing safety would be moderate within the Eastern Section under Build Alternative Option 1. When compared with Build Alternative Option 1, Build Alternative Option may have slightly reduced effects due to a smaller footprint associated with a shorter route

alignment and reduced station options; however, effects would have the same magnitude 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 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 the Coachella Valley. The number of trains traveling through the existing grade crossings between LAUS and Colton would increase with implementation of the Program. However, the traffic control devices at these existing crossings provide the level of advanced warning and protection from an oncoming train required by CPUC and the California MUTCD (Caltrans 2020). These existing grade crossings currently meet the requirements of CPUC and the California MUTCD. Operation of the Program in the Western Section would not modify the existing grade crossing devices and would not require the approval of CPUC. It is anticipated that gate operation at these existing grade crossings would be optimized to accommodate the increased number of activities. 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.

Eastern Section. Similar to the 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 the Coachella Valley. The number of trains traveling through the existing grade crossings between Colton and the eastern terminus (Coachella for Build Alternative Option 1, Indio for Build Alternative Options 2 and 3) would increase with implementation of the Program. The traffic control devices at these existing crossings provide the level of advanced warning and protection from an oncoming train required by CPUC and the California MUTCD (Caltrans 2020). These existing grade crossings currently meet the requirements of CPUC and the California MUTCD.

Depending on the type and location of new rail infrastructure improvements and station facilities being proposed within the Eastern Section, there is the possibility for the creation of new grade crossings or the need for modification of existing grade crossings which would require the approval of the CPUC. A detailed assessment of effects on existing and proposed grade crossings would be prepared during the Tier 2/Project-level analysis once site-specific rail infrastructure improvements

or station facility details are known. When compared with the No Build Alternative, effects related to grade-crossing safety would be moderate within the Eastern Section under Build Alternative Option 1. When compared with Build Alternative Option 1, Build Alternative Option 2 may have slightly reduced effects due to a smaller footprint associated with a shorter route alignment and reduced station options; however, effects would have the same magnitude 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.

Pedestrian and Bicycle Safety Effects

Pedestrian and bicycle safety effects are discussed in detail in Section 3.3, Transportation, of this Tier 1/Program EIS/EIR.

Transport of Hazardous Materials Effects

Transport of hazard materials effects are discussed in detail in Section 3.11, Hazards and Hazardous Materials, of this Tier 1/Program EIS/EIR.

Community Emergency Response Services Effects

Community emergency response service effects are discussed in detail in Section 3.14, Parklands and Community Services, of this Tier 1/Program EIS/EIR.

Seismic Safety Effects

Seismic safety effects are discussed in detail in Section 3.10, Geology, Soils, Seismicity, and Paleontological Resources, of this Tier 1/Program EIS/EIR.

Crime Prevention and Security Effects

CONSTRUCTION

Western Section. The Build Alternative Options would not require construction of additional rail or station infrastructure in the Western Section because the existing railroad infrastructure and stations from LAUS to Colton would be used. When compared with the No Build Alternative, short-term and temporary effects related to crime prevention and security would be negligible because no additional construction activities are planned within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Construction of Build Alternative Option 1, 2, or 3 in the Eastern Section of the Program Corridor would require the construction of rail stations, reconfiguration of existing or creation of new rail facilities, and potential ROW acquisition. Generally, active construction sites would include fencing, protective barriers, and/or signs that would prohibit and prevent the general public from entering or traversing construction areas. Construction laydown areas would generally be secured using fencing, lighting, and/or night patrols. In addition, contractors would be required to comply with applicable safety training and procedures while working in railroad ROW, including the use of flagman, safety barriers to provide separation between construction activities and active tracks, and temporary slow orders placed on train operations for certain conditions.

Potential effects depend on where the infrastructure improvements, including new stations, would be located, which have not yet been selected. The properties that would be affected by the future construction and operation of a passenger rail system and to what extent cannot be determined at this time. The Tier 2/Project-level analysis would evaluate the safety and security risk for the selected sites. When compared with the No Build Alternative, short-term and temporary effects related to crime prevention and security would be moderate within the Eastern Section under Build Alternative Option 1. When compared with Build Alternative Option 1, Build Alternative Option 2 may have slightly reduced effects due to a smaller footprint associated with a shorter route alignment and reduced station options; however, effects would have the same magnitude and be considered moderate when compared with the No Build Alternative. When compared with Build Alternative Option 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 the Coachella Valley. Existing stations within the Western Section of Program Corridor generally have close-circuit security cameras, roving code enforcement or compliance inspectors, and a transit security force. Additionally, signs with phone numbers are posted at stations for use if transit patrons or the general public observe suspicious activity within the station areas. Consistent with current transit provider policies, anyone observed by the roving code enforcement inspectors in a fare paid areas without proof of a paid fare would be asked to leave the premises. When compared with the No Build Alternative, effects related to crime prevention and security would be negligible within the Western Section under Build Alternative Option 1. When compared with Build Alternative Option

1, Build Alternative Options 2 and 3 would have the same magnitude of effect and be considered negligible when compared with the No Build Alternative.

Eastern 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 the Coachella Valley. Existing stations within the Eastern Section of the Program Corridor would continue to implement existing security protocols, such as station monitoring, roving code enforcement or compliance inspectors, and a transit security force. New stations that could be constructed within the Eastern Section of the Program Corridor would be anticipated to implement a similar set of crime prevention and security protocols. In addition, new stations would be designed using Crime Prevention Through Environmental Design principles and would require preparation of safety and security certification plans that addresses design, construction, testing, and initiation into revenue service. When compared with the No Build Alternative, effects related to crime prevention and security would be moderate within the Eastern Section under Build Alternative Option 1. When compared with Build Alternative Option 1, Build Alternative Option 2 may have slightly reduced effects due to a smaller footprint associated with a shorter route alignment and reduced station options; however, effects would have the same magnitude 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.

3.15.6 NEPA Summary of Potential Effects

Table 3.15-5 summarizes 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 how safety and security may be affected and, more importantly, the relative magnitude of potential effects. Specific mitigation measures to avoid and minimize effects would be analyzed during the Tier 2/Project-level environmental process.

Table 3.15-5. NEPA Summary of Effects on Safety and Security

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

Notes:

- ^a The No Build Alternative includes existing and potential expansion of roadway, passenger rail, and air travel facilities within the Tier 1/Program EIS/EIR Study Area; however, for the service-level evaluation, identifying levels of effect from potential expansion of those facilities is speculative and would be dependent on Tier 2/Project-level analysis.

3.15.7 CEQA Summary of Potential Impacts

The CEQA Guidelines Appendix G checklist does not include a safety and security section; however, elements pertaining to safety and security (including road closures, evacuation routes, and other hazards) are analyzed in Section 3.3, Transportation; Section 3.10, Geology, Soils, Seismicity, and Paleontological Resources; Section 3.11, Hazards and Hazardous Materials; and Section 3.14, Parklands and Community Services; of this Tier 1/Program EIS/EIR.

3.15.8 Avoidance, Minimization, and Mitigation Strategies

Identified below are proposed programmatic mitigation strategies for further consideration in the Tier 2/Project-level analysis. Coordination with local agencies and stakeholders would occur to develop Project-specific mitigation measures during the Tier 2/Project-level analysis after design details are known. Proposed programmatic mitigation strategies or design considerations, consistent with state and federal regulations may include, but are not limited to, the following:

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 SS-1: During Tier 2/Project-level analysis, a Project-specific collision hazard analysis shall be required and would be prepared in coordination local jurisdictions in which the specific rail infrastructure or station facility is located. The collision hazard analysis shall be prepared in compliance with the Federal Railroad Administration's *Collision Hazard Analysis Guide: Commuter and Intercity Passenger Service* (Federal Railroad Administration 2007), which provides a step-by-step procedure on how to perform a hazard analysis and how to develop effective mitigation strategies that would improve passenger rail safety.

Mitigation Strategy SS-2: Based on the results of a subsequent Tier 2/Project-level analysis and recommendations, safety and security certification plans shall be developed for the specific rail infrastructure or station facility proposed. The safety and security certification plan shall be prepared in compliance with the Federal Railroad Administration, Occupational Safety and Health Administration, California Public Utilities Commission, and other applicable agencies and address design, construction, testing and initiation into revenue service.

3.16 Socioeconomics and Communities Affected

3.16.1 Introduction

This section provides an evaluation of the potential effects associated with the No Build Alternative and Build Alternative Options on the socioeconomic conditions of established communities throughout the Tier 1/Program EIS/EIR Study Area. Information contained in this section is summarized from the *Socioeconomic Technical Memorandum* (Appendix I of this Tier 1/Program EIS/EIR).

3.16.2 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 existing socioeconomic conditions within the Tier 1/Program EIS/EIR Study Area and evaluated the potential socioeconomic impacts on communities as a result of implementing the Build Alternative Options.

Federal

Civil Rights Act of 1964

The Civil Rights Act of 1964 rules that no person in the U.S. shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any federal program or activity on the grounds of race, color, or national origin. All relocation services and benefits would be administered without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (Title 42 USC Section 2000d, et seq.). Benefits for eligible owners and tenants are determined on an individual basis and explained in detail by an assigned ROW specialist.

Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970

The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act) provides uniform and equitable treatment of persons displaced from their homes, businesses, non-profit associations, or farms by federal and federally assisted programs and establishes uniform and equitable land acquisition policies.

The Uniform Act requires the owning agency to notify affected owners of the agency's intent to acquire an interest in their property, including a written offer letter of just compensation that specifically describes those property interests and assigns a ROW specialist to each property owner

to assist them with this process. The Uniform Act also provides financial and advisory benefits to displaced individuals to help them relocate their residence or business. Benefits are available to owners and tenants of residential and business properties.

In compliance with the Uniform Act, property owners and tenants would receive relocation assistance and be compensated. If required, housing of last resort would be used, which may involve payments for replacement housing costs that exceed the maximum amounts allowed under the Uniform Act or other methods of providing comparable decent, safe, and sanitary housing within the financial means of the displaced persons.

State

California Relocation Assistance Act

The California Relocation Assistance Act includes requirements for just compensation for real property. Owners of private property have federal and state constitutional guarantees that their property will not be taken for public use or damaged unless they first receive just compensation. Just compensation is measured by the fair market value of the acquired property. According to the Code of Civil Procedure Section 1263.320a:

Fair market value is considered to be the highest price on the date of valuation that would be agreed to by a seller, being willing to sell, but under no particular or urgent necessity for so doing, nor obliged to sell; and a buyer, being ready, willing and able to buy but under no particular necessity for so doing, each dealing with the other with the full knowledge of all the uses and purposes for which the property is reasonably adaptable and available.

3.16.3 Methods for Evaluating Environmental Effects

This methodology identifies the approach, assumptions, and data sources for describing existing conditions for socioeconomics and analyzing environmental consequences of implementing the Build Alternative Options.

Socioeconomic indicators include historic population growth, population projections, employment, community facilities, race and ethnicity, household income, median household income and income below poverty, and limited English proficiency. Population demographic data is presented for counties, cities, and census block groups located partially or fully within the Tier 1/Program EIS/EIR Study Area, as defined below. The Build Alternative Options traverses 288 census block groups within these counties and cities, including unincorporated areas of Los Angeles, Orange, San Bernardino, and Riverside Counties. Data for counties and cities is presented in data tables included in Appendix I of this Tier 1/Program EIS/EIR.

The evaluation of environmental consequences on socioeconomics included a qualitative assessment of residential, commercial, and other property effects resulting from acquisition; fiscal implications resulting from residential or business migration out of the community or reductions in local government revenues; potential effects on community cohesion; and changes to regional mobility and connectivity. The evaluation of environmental consequences on socioeconomics is organized as follows:

- Potential effects from acquisitions, easements, and displacements (public or private) were evaluated in compliance with the Uniform Act and broadly analyzed on a county-by-county basis. This evaluation did not identify specific properties that would be affected by land acquisition, displacement, or relocation, as construction data and potential station areas are not yet known. Specific properties that would be affected by land acquisition, displacement, or relocation would be identified in the Tier 2/Project-level analysis.
- Regional economic effects that may occur as a result of construction and operation of the Program are evaluated at the scale of the four-county region (Los Angeles, Orange, San Bernardino, and Riverside Counties). Effects on local government services and revenue are analyzed at the scale of counties and cities.

Localized socioeconomic effects, regardless of scale, cannot be quantified until specific Project design details (i.e., construction footprint, road crossings, and station locations), construction expenditures, and the details of planned rail operations are known. Therefore, existing socioeconomic conditions within the Tier 1/Program EIS/EIR Study Area are described quantitatively, while the potential effects of the Build Alternative Options are described qualitatively in this evaluation. The Tier 2/Project-level analysis would address site-specific potential effects resulting from construction and operation of new stations, maintenance facilities, and other infrastructure.

Tier 1/Program EIS/EIR Study Area

For purposes of socioeconomic and community analysis, the Tier 1/Program EIS/EIR Socioeconomics Study Area encompasses 0.5 mile centered on the railroad centerline (0.25 mile on either side).

Data Sources

Social and economic characteristics were gathered from the U.S. Census Bureau, from the 1970 to 2010 decennial U.S. Census and the 2012-2016 American Community Survey (ACS) 5-year estimates.

Population projections were obtained from the California Department of Finance, Demographic Research Unit. Population, household income, and employment characteristics were gathered to describe the population demographics within the Tier 1/Program EIS/EIR Study Area. The description of the socioeconomic environment also includes identification of minority, low-income, and limited English proficiency households. The source and scale of economic and demographic data is summarized in Appendix I of this Tier 1/Program EIS/EIR.

Related Resources

This evaluation incorporates data and analyses from related resources to contribute to the assessment of socioeconomics and communities affected. These related resources are identified in Table 3.16-1.

Table 3.16-1. Related Resource Inputs to Socioeconomic Assessment

Resource	Input for Socioeconomic Assessment
Land Use and Planning (Section 3.2)	Supplemental information about the land use types and areas were used to assess the potential for displacement of residences, businesses, or community facilities due to construction of new infrastructure or stations outside of the existing railroad ROW.
Transportation (Section 3.3)	The location of existing and proposed transportation corridors and facilities were used to assess compatibility with the Program. The location of existing and proposed passenger rail stations was used to assess potential effects on communities.
Visual Quality and Aesthetics (Section 3.4)	Supplemental information about temporary effects on visual resources was used to inform visual disruptions to communities during construction.
Noise and Vibration (Section 3.6)	Land use and zoning data identified the location of sensitive receptors to assess the potential for disruption to communities.
Parklands and Community Services (Section 3.14)	Supplemental information about parklands, community services, and facilities; including service or facility type, service area, and proximity to the Build Alternative Options; were used to inform the socioeconomic assessment.

Resource	Input for Socioeconomic Assessment
Environmental Justice (Chapter 4)	Socioeconomic information identified the location of EJ populations and assessed the potential for disproportionate effects.

Notes:

EIR=environmental impact report; EIS=environmental impact statement; EJ=environmental justice;

ROW=right-of-way

3.16.4 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 Colton is urbanized. The Eastern Section of the Program Corridor is less urbanized with vacant land comprising the largest land use category within the Eastern Section of the Tier 1/Program EIS/EIR Study Area.

Historical and Projected Population

Build Alternative Option 1 (Coachella Terminus)

Between 1970 and 2010, the four-county region of Los Angeles, Orange, Riverside, and San Bernardino Counties (which the Program Corridor crosses through) grew by more than 7.4 million people. In 2010, the region was home to approximately 46.0 percent of the state of California's population. Los Angeles County has the largest population in the four-county region, followed by Orange County. Historical growth patterns between 1970 and 2010 show that Riverside and San Bernardino Counties grew at a faster rate than Los Angeles and Orange Counties; Riverside County and San Bernardino County grew at an average annual rate of 4.0 percent and 2.8 percent, respectively, while Los Angeles County and Orange County grew annually by 0.8 percent and 1.9 percent, respectively.

Population projections prepared by the California Department of Finance forecast that the population within the four-county region will continue to grow between 2018 and 2050; however, the annual growth rate is anticipated to slow to 0.5 percent annually for the region as a whole with higher annual growth rates forecast for San Bernardino County (1.0 percent) and Riverside County (1.1 percent) compared with Los Angeles County (0.3 percent) and Orange County (0.4 percent), consistent with historical trends (California Department of Finance 2018).

The four-county region is projected to grow approximately 17.0 percent overall between 2018 and 2050, for a total population of approximately 21.3 million people in 2050. By then, the four-county region will account for approximately 43.0 percent of the state population. These growth forecasts suggest that the Program Corridor between Los Angeles and San Bernardino Counties will continue to support a substantial portion of the state's population in 2050.

Build Alternative Option 2 (Indio Terminus)

Existing and projected population data and trends within Build Alternative Option 2 are the same as Build Alternative Option 1.

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

Existing and projected population data and trends within Build Alternative Option 3 are the same as Build Alternative Option 1.

Employment

Build Alternative Option 1 (Coachella Terminus)

According to ACS 2012 to 2016, 5-year estimates of the largest employment sectors in the state of California include the education, health care, and social services sector, followed by the professional, scientific, management, administrative, and waste management services sector and the retail trade sector. The employment characteristics of communities within the Program Corridor generally mirror those of the state.

Most of the economies outside the larger urban centers follow the regional trends. The education, health care, and social services sector is the leading employment division in almost all the counties and cities within the Program Corridor. The smallest employment sectors in the Program Corridor include agriculture, forestry, fishing and hunting and mining; information; wholesale trade; and, public administration.

Relative to other communities within the Program Corridor, the Cities of Vernon, Indio, and Coachella are three exceptions from the general trends, as detailed below:

- The City of Vernon is an industrial city of 5.2 square miles located several miles southeast of downtown Los Angeles. The City of Vernon is home to more than 1,800 businesses that employ approximately 55,000 people (City of Vernon 2018). However, most employees are non-resident, as evidenced by the fact that the employed civilian labor force in Vernon was estimated at only 57 individuals in the ACS 2012-2016 5-year estimates. Approximately

47.0 percent of those individuals are employed in finance, insurance, real estate, and rental and leasing (Appendix I of this Tier 1/Program EIS/EIR).

- The City of Indio has been one of Southern California's most important agricultural regions with a history of date cultivation and currently produces 41.4 million pounds of dates annually (City of Indio 2018). Historically, many residents were employed by the agricultural industry; however, development related to residential uses, recreation, tourism, and hospitality has begun to displace agriculture in the region today. Per the ACS 2012-2016 5-year estimates, the primary employment sector in Indio is arts, entertainment, and recreation and accommodation and food services, accounting for 19.9 percent of the civilian employment pool.
- In the City of Coachella, agriculture remains an important employment sector, with 11.3 percent of civilian employment attributed to agriculture, forestry, fishing, hunting, and mining.

Major employers in Los Angeles County and Orange County include multiple healthcare systems (e.g., Kaiser Permanente and Los Angeles Health System), educational services (e.g., University of California and California State University), entertainment services (Walt Disney Company), and transportation services (e.g., Metro, SCRRA, and Orange County Transportation Authority).

Major employers in San Bernardino County and Riverside County include transportation services (e.g., SCRRA, Omnitrans Public Transit Agency, Riverside Transit Agency, Ontario International Airport, and Palm Springs International Airport), warehousing and logistics services (e.g., Amazon, Ross, ALDI, Harbor Freight, and Lowes), and entertainment services (Morongo Casino, Resort and Spa, Spotlight 29 Casino, and Fantasy Springs Resort Casino).

ACS 2012-2016 5-year estimates report an unemployment rate of 8.7 percent in California and 9.0 percent throughout the four-county area. The percent of the civilian labor force that is unemployed is higher than the four-county average of 9.0 percent in 12 of the 27 cities located within the four counties. The Cities of Coachella, San Bernardino, and Banning have the highest unemployment rates at 17.2 percent, 14.1 percent, and 14.0 percent, respectively.

Build Alternative Option 2 (Indio Terminus)

Existing and projected employment data and trends within Build Alternative Option 2 are the same as Build Alternative Option 1.

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

Existing and projected employment data and trends within Build Alternative Option 3 are the same as Build Alternative Option 1.

Community Facilities

Build Alternative Option 1 (Coachella Terminus)

Community facilities occurring throughout the Program Corridor include parks, schools, libraries, places of worship, healthcare facilities, police and fire stations, and veteran services (Section 3.14, Parklands and Community Services, of this Tier 1/Program EIS/EIR).

Build Alternative Option 2 (Indio Terminus)

Existing community facility information and data within Build Alternative Option 2 are the same as Build Alternative Option 1.

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

Existing community facility information and data within Build Alternative Option 3 are the same as Build Alternative Option 1.

Race and Ethnicity

The U.S. Census Bureau reports race and ethnicity as two separate categories. An individual can identify their race as White, Black or African American, Asian, Native Hawaiian and Other Pacific Islander, Some Other Race, or Two or More Races. Ethnicity is defined as whether a person is of Hispanic origin or not. Ethnicity, therefore, is broken out in two categories: Hispanic or Latino and Not Hispanic or Latino. Individuals identifying as Hispanic may be of any race.

Build Alternative Option 1 (Coachella Terminus)

According to the 2012-2016 ACS 5-year estimates, California was home to approximately 38.7 million people. Of the total population, approximately 14.9 million people (or 38.6 percent) are of Hispanic or Latino ethnicity. The remaining 23.8 million are of non-Hispanic or Latino origin. Of the state's non-Hispanic or Latino population, the greatest number of people identified their race as White, followed by Asian, and Black or African American. Those identifying as American Indian and Alaska Native or Native Hawaiian and Other Pacific Islander make up the smallest racial categories in the state, totaling less than 1.0 percent each of the entire population.

The racial composition trends in the four counties (Los Angeles, Orange, Riverside, and San Bernardino Counties) follow those of the state. The greatest proportion of individuals identify their race as White, followed by Asian, and Black or African American. However, a greater percent of the population identifies as Hispanic or Latino in the four-county region (46.1 percent) compared with the state (38.6 percent). San Bernardino County has the largest Hispanic or Latino population, accounting for 51.7 percent of the county's total population. Orange County has the smallest Hispanic or Latino population, estimated at 34.2 percent of its population.

Several communities in the four-county area have a larger share of minority populations when compared with the region. The Cities of Commerce, Bell, and Pico Rivera are all predominantly Hispanic, with greater than 90.0 percent of their population descending from Hispanic or Latino ethnicity. The City of Banning in Riverside County has the highest proportion of American Indian and Alaska Native individuals, totaling almost 2.4 percent of its population. The Morongo Indian Reservation, consisting mainly of the Cahuilla and Serrano tribal groups, is located northeast of the City of Banning. Refer to Appendix I of this Tier 1/Program EIS/EIR for additional information on race and ethnicity in the counties and cities within the Program Corridor.

Build Alternative Option 2 (Indio Terminus)

Existing race and ethnicity information and data within Build Alternative Option 2 are the same as Build Alternative Option 1.

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

Existing race and ethnicity information and data within Build Alternative Option 3 are the same as Build Alternative Option 1.

Household Income

Build Alternative Option 1 (Coachella Terminus)

ACS 2012-2016 5-year estimates report the median household income for the state of California to be \$63,783. In the four-county area, the median household income ranged from a high of \$78,145 in Orange County, to a low of \$54,469 in San Bernardino County. Several communities had higher median household incomes compared with the four counties, including Yorba Linda (\$119,697), La Mirada (\$81,956), and Placentia (\$80,668). Communities in the Program Corridor with the lowest median household income include Vernon (\$38,333), Bell (\$38,823), San Bernardino (\$38,456), and Coachella (\$36,124). Appendix I of this Tier 1/Program EIS/EIR provides a breakdown of households per income bracket and median household income for the counties and cities in the Program Corridor.

Build Alternative Option 2 (Indio Terminus)

Existing household income information and data within Build Alternative Option 2 are the same as Build Alternative Option 1.

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

Existing household income information and data within Build Alternative Option 3 are the same as Build Alternative Option 1.

Poverty

Build Alternative Option 1 (Coachella Terminus)

According to the ACS 2012-2016 5-year estimates, statewide, 11.8 percent of families were estimated to have incomes below the poverty level. Within the four-county region, family poverty rates for three of the four counties were higher than the state average, including Los Angeles County (13.9 percent), Riverside County (12.8 percent), and San Bernardino County (15.4 percent). The family poverty rate in Orange County is lower than the state average at 8.7 percent.

Communities in the Program Corridor with the highest percentage of families in poverty include Vernon (46.7 percent), San Bernardino (28.1 percent), and Coachella (26.6 percent). Five of the six incorporated cities located in Riverside County in the Eastern Section of the Program Corridor have poverty rates exceeding 12.8 percent, which is the average poverty rate for Riverside County. Two of the five incorporated cities located in San Bernardino County in the Eastern Section of the Program Corridor have poverty rates that exceed 15.4 percent, which is the average poverty rate for Riverside County (California State Data Center 2016a). Refer to Appendix I of this Tier 1/Program EIS/EIR for additional information on poverty rates within the counties and cities in the Program Corridor.

Build Alternative Option 2 (Indio Terminus)

Existing poverty information and data within Build Alternative Option 2 are the same as Build Alternative Option 1.

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

Existing poverty information and data within Build Alternative Option 3 are the same as Build Alternative Option 1.

Limited English Proficiency

Limited English proficiency is characterized in this section in terms of a U.S. Census respondent's ability to speak English. U.S. Census respondents who reported speaking a language other than English are then asked to indicate their English-speaking ability based on one of the following categories: "Very well," "Well," "Not well," or "Not at all." Those who answered "Well," "Not well," or "Not at all" are reported as "Speaking English 'Less than Very Well.'"

Build Alternative Option 1 (Coachella Terminus)

In the four counties, the percent of the population age 5 and over that speaks English "Less than Very Well" is highest for Los Angeles County (24.9 percent), followed by Orange County (20.2 percent), San Bernardino County (15.7 percent), and Riverside County (15.0 percent). Cities located in the Program Corridor with the highest rates of limited English proficiency include Coachella (47.1 percent), Bell (41.0 percent), Buena Park (32.7 percent), and Commerce (31.5 percent) (California State Data Center 2016b). Refer to Appendix I of this Tier 1/Program EIS/EIR for additional information on rates of limited English proficiency within the counties and cities in the Program Corridor.

Build Alternative Option 2 (Indio Terminus)

Existing limited English proficiency information and data within Build Alternative Option 2 are the same as Build Alternative Option 1.

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

Existing limited English proficiency information and data within Build Alternative Option 3 are the same as Build Alternative Option 1.

3.16.5 Environmental Consequences

Overview

The service-level evaluation provides qualitative information on the potential economic effects of construction and operation of the Program, including construction employment, property tax effects, and operational benefits. The Tier 2/Project-level analysis would include a quantitative analysis that includes the number of short-term benefits associated with construction along with the potential property tax losses associated with property acquisitions.

It is anticipated that any of the Build Alternative Options would have an overall positive effect on the communities within and along the Program Corridor in terms of generating construction jobs,

increasing the potential for new employment opportunities around station areas, reducing congestion on highways, and improving regional connectivity.

The Build Alternative Options would generally be within existing transportation corridors through urban areas and would not further bisect communities but could increase the intensity of noise effects. Construction of the alternatives would potentially result in temporary construction effects including an increase in noise, dust, and traffic congestion, and effects would be greater in the urban areas especially where construction occurs close to sensitive uses such as residential development and schools.

No Build Alternative

The No Build Alternative, as described in Chapter 2, Program Alternatives, of this Tier 1/Program EIS/EIR, is used as the baseline for comparison. The No Build Alternative would not implement the Program associated with this service-level evaluation. Economic activity within the four-county Tier 1/Program EIS/EIR Study Area is dependent on adequate transportation infrastructure for localized and regional economic growth potential. Under the No Build Alternative, the economies of these communities would experience reduced transportation capacity, thereby affecting socioeconomic conditions. The No Build Alternative would also forego the short-term and long-term job creation and increases in sales tax revenue that is projected under the Build Alternative Options. However, potential community disruption and division associated with construction and operation of the enhanced passenger rail system would be avoided under the No Build Alternative.

Build Alternative Options 1, 2, and 3

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 land acquisition, displacement and relocations, job creation, property or sales and use tax losses, sales tax gains, or community cohesion would be negligible within the Western Section under Build Alternatives Options 1, 2, and 3.

Eastern Section. Socioeconomic and community effects are expected to be both positive and negative. In terms of negative socioeconomic and community effects, land acquisition for rail infrastructure improvements or station facilities within the Eastern Section under any of the Build

Alternative Options could result in property tax revenue losses for local jurisdictions if residential or business properties are removed from the property tax assessment roll. Community effects could include disruptions to local communities and may require displacements or relocations of residences and businesses.

Rail infrastructure improvements and potential new stations that would be needed in the Eastern Section of the Program Corridor could require land acquisitions. It is anticipated that rail infrastructure improvements for sidings, additional main line track, wayside signals, drainage, and grade-separation structures are anticipated primarily within the existing rail ROW or consist of sliver acquisitions adjacent to the existing track. Land acquisitions for new passenger rail stations could be more extensive, depending on final siting of station locations. If construction of new rail infrastructure or stations requires property outside of the existing railroad ROW, residences, businesses, or community facilities could be displaced. Site-specific effects related to potential land acquisition, displacements, and relocations would be identified and evaluated during the Tier 2/Project-level analysis.

The provisions of the Uniform Act would apply to all acquisitions of real property or displacements of persons resulting from a transportation project. Because the Uniform Act requires the owning agency to notify affected owners of the agency's intent to acquire an interest in their property, this process would occur prior to construction with services of a ROW specialist assigned to each property owner to assist him or her through the acquisition process. The Uniform Act also provides benefits to displaced individuals to assist them financially and with advisory services related to relocating their residence or business operation. Benefits are available to both owner occupants and tenants of either residential or business properties.

In addition, the potential for land acquisition in the Eastern Section could result in property tax revenue losses for local jurisdictions if residential or business properties are removed from the property tax assessment roll. Property tax losses are calculated based on the assessed value of properties that would be full or partial fee acquisitions. The acquisition of temporary and permanent easements would not result in property tax losses because the landowner would retain fee interest in the land and would continue to pay property tax.

Land acquisitions could also result in sales and use tax revenue losses, if sales and use tax-generating businesses are displaced and relocated outside of their current tax district. Relocation of businesses in the same tax district could result in temporary sales and use tax revenue losses during the time when affected businesses are closed for relocation. Site-specific effects related to potential property or sales and use tax losses would be identified and evaluated during the Tier 2/Project-level analysis.

Construction on the Eastern Section (sidings, additional main line track, wayside signals, drainage, grade-separation structures, and stations) may also temporarily affect communities along the Program Corridor. These effects could include temporary relocation of public roads or road closures resulting in local residents, commercial vehicles, and/or emergency service providers needing to find alternate routes through the construction area. Elevated levels of noise and air emissions from construction vehicles and equipment, traffic detours and vehicle delay, and visual disruption during construction under any of the Build Alternative Options in the Eastern Section could cause temporary disruptions to communities adjacent to the railroad ROW.

Although construction of any of the Build Alternative Options may potentially result in negative socioeconomic effects, construction activities within the Eastern Section would also result in several socioeconomic and community benefits including the creation of direct, indirect, and induced jobs and temporary increases in sales tax revenues within the counties and cities where the construction activities would take place.

Of the short-term employment opportunities that could be generated, the largest job growth is anticipated to be in the construction industry followed by the retail trade sector due in large part to spending on goods and services by the temporary construction workforce. Because infrastructure improvements are unknown as this time, quantitative effects related to potential short-term job creation would be identified and evaluated during the Tier 2/Project-level analysis.

During construction activities, a temporary increase in sales tax revenues would be anticipated within the counties and cities in the Eastern Section where construction would occur. This increase would result from spending associated with construction equipment and materials. Unless specifically exempted, all transactions for tangible assets utilized during construction activities would be subject to sales tax. Site-specific effects related to potential sales tax revenues would be considered during the Tier 2/Project-level analysis.

As discussed above, the construction of the Program would be beneficial in reducing localized effects in some cases and have adverse effects in other cases. When compared with the No Build Alternative, socioeconomic effects could be substantial within the Eastern Section of the Program Corridor under Build Alternative Option 1. When compared with Build Alternative Option 1, Build Alternative Option 2 may have slightly reduced effects due to a smaller footprint associated with a shorter route alignment and reduced station options; however, the magnitude of effect would be similar and be considered substantial when compared with the No Build Alternative. When compared with Build Alternative Option 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 substantial when compared with the No Build Alternative.

However, while construction of the Program within the Eastern Section could have socioeconomic effects on communities, construction activities are also anticipated to generate socioeconomic benefits in the form of new employment opportunities and increases in temporary sales tax revenue.

Operation

Western Section. During operation, 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 between Los Angeles and Coachella.

Operation of the Build Alternative Options in the Western Section of the Program Corridor are not anticipated to cause long-term disruptions to residences and businesses located near the existing railroad ROW. In addition, operation of the Program in the Western Section of the Program Corridor would not require land acquisitions or result in displacements or relocations, as the existing railroad infrastructure and stations would be utilized. Therefore, substantial residential or business migration out of the community or substantial reductions in revenue sources for local governments because of property tax or sales and use tax losses is not anticipated under any of the Build Alternative Options.

The long-term operation of the enhanced passenger rail system proposed as part of the Program would result in the creation of direct jobs, as well as additional indirect and induced jobs. The majority of permanent jobs resulting from long-term operation and maintenance activities of the Program would be in the economic sector of transit and ground passenger transportation, which includes jobs related to train operations, dispatching, maintenance of equipment, and maintenance of infrastructure. In the long term, the Program is also anticipated to result in job creation due to improvements to regional accessibility. For example, improvements in accessibility can result in long-term dynamic economic effects, such as enhanced labor market accessibility, increased business travel and transactions, direct transport cost savings, improved business and worker productivity, and support of tourism and other important service sectors requiring patron accessibility.

Long-term socioeconomic benefits associated with the Program would be realized within the counties and cities that the Program Corridor crosses. Enhanced passenger rail service within the Program Corridor would provide additional connections to major economic generators within the Program Corridor, including the Cities of Los Angeles, Fullerton, Riverside, and Palm Springs. The improved access would likely result in increased economic activity within cities directly served by the passenger rail, particularly near stations.

Improved access within the region and affected cities is anticipated to have social benefits including better access to jobs, community amenities, and facilities. Improving regional mobility and connections between economic and employment centers, education centers, other cultural and

recreational activity centers, and to shops and services adjacent to station areas would enhance socioeconomic conditions throughout the region.

Connecting urban areas and communities by improving access and mobility could expand employment opportunities over the larger geographic area, benefitting both employers (by expanding the labor pool) and employees (by offering more choices regarding where to live and work). Passenger rail service could also offer travel time reductions for transit patrons and regional commuters by reducing congestion by shifting trips from the roadway system to the passenger rail system.

Therefore, the improvements in regional mobility and connectivity within the Western Section of the Program Corridor associated with an enhanced passenger rail system are anticipated to result in a permanent increase in sales tax revenues within the counties and cities where the Build Alternative Options would operate. Site-specific effects related to potential sales tax revenues would be considered during the Tier 2/Project-level analysis.

When compared with the No Build Alternative, socioeconomic effects on communities within the Program Corridor would be negligible under Build Alternative Option 1. When compared with Build Alternative Option 1, Build Alternative Options 2 and 3 would have the same magnitude of effect and be considered negligible when compared with the No Build Alternative. The communities within the Program Corridor for all Build Alternative Options would also experience socioeconomic benefits from improved mobility and connectivity and the generation of new tax revenue and employment opportunities.

Eastern Section. During operation, 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 between Los Angeles and Coachella. Socioeconomic and community effects are expected to be both positive and negative within the Eastern Section of the Program Corridor. In terms of negative socioeconomic and community effects, land acquisition for the Build Alternative Options could result in property tax revenue losses for local jurisdictions if residential or business properties are removed from the property tax assessment roll. Community effects could include disruptions to local communities and may require displacements or relocations of residences and businesses. Site-specific effects related to potential land acquisitions, displacements, or relocations and property or sales and use tax losses would be identified and evaluated during the Tier 2/Project-level analysis.

The additional passenger rail services that would occur under any of the Build Alternative Options within the Eastern Section of the Program Corridor would result in several socioeconomic and community benefits: the creation of direct, indirect, and induced jobs; permanent increases in sales

tax revenues within the counties and cities where the Build Alternative Options would operate; and improved regional mobility and connectivity.

Within the Eastern Section of the Program Corridor, new station facilities could encourage redevelopment in the surrounding area and the potential for transit-oriented development. These additional developments could provide additional employment opportunities and new housing opportunities to address the projected employment and population growth within the Eastern Section of the Program Corridor. The potential for development around each station facility would depend on the type of station planned, which would be determined during the Tier 2/Project-level analysis. Any new development in the station areas would also result in the potential for additional property tax and sales tax revenues, which would benefit the counties and cities where the station facilities would be located.

As discussed above, the operation of the Program would be beneficial in reducing localized effects in some cases and have adverse effects in other cases. When compared with the No Build Alternative, socioeconomic effects could be substantial within the Eastern Section of the Program Corridor under Build Alternative Option 1. When compared with Build Alternative Option 1, Build Alternative Option 2 may have slightly reduced effects due to a smaller footprint associated with a shorter route alignment and reduced station options; however, the magnitude of effect would be similar and considered substantial when compared with the No Build Alternative. When compared with Build Alternative Option 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 substantial when compared with the No Build Alternative.

While operation of the Program within the Eastern Section could have socioeconomic effects on communities, operational activities are also anticipated to generate socioeconomic benefits in the form of new employment opportunities and permanent sales tax revenue.

3.16.6 NEPA Summary of Potential Effects

Table 3.16-2 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 potential socioeconomic and community effects and, more importantly, the relative magnitude of the effect. Specific mitigation measures to reduce effects would be identified during the Tier 2/Project-level environmental process.

Table 3.16-2. NEPA Summary of Socioeconomic Effects

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

Notes:

^a The No Build Alternative includes existing and potential expansion of roadway, passenger rail, and air travel facilities within the Tier 1/Program EIS/EIR Study Area; however, for the service-level evaluation, identifying levels of effect from potential expansion of those facilities is speculative and would be dependent on Tier 2/Project-level specific analysis.

EIR=environmental impact report; EIS=environmental impact statement

3.16.7 CEQA Summary of Potential Impacts

Based on the information provided in Section 3.16.4 and 3.16.5, and considering the CEQA Guidelines Appendix G Checklist questions for population and housing, the Build Alternative Options are considered to have the potential to result in significant population and housing impacts when reviewed on a Program-wide basis. Placing the infrastructure improvements and new stations largely within or along the existing ROW reduces the potential for significant impacts; however, because the proposed stations have not been selected, existing housing and communities may be significantly impacted. At the programmatic analysis level, it is not possible to know the location, extent, and characteristics of impacts on population and housing.

Proposed programmatic mitigation strategies discussed in Section 3.16.8 would be applied to reduce potential impacts. Table 3.16-3 describes the CEQA significance conclusions for the Build Alternative Options; the proposed programmatic mitigation strategies that would be applied to minimize, reduce, or avoid the potential impacts; and the significance determination after mitigation strategies are applied. The identification and implementation of additional site-specific mitigation measures necessary for Project implementation would occur as part of the Tier 2/Project-level analysis.

Table 3.16-3. CEQA Summary of Impacts for Population and Housing

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<i>Would the Program induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?</i>		
<i>Construction</i>		
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 in the Western Section under Build Alternative Options 1,2, and 3.	Not applicable	Not applicable
Eastern Section – Less than Significant. Construction activities that would occur within the Program Corridor are not anticipated to induce substantial unplanned population growth, as activities are temporary and would be filled by those who reside within the region. Impacts are anticipated to be less than significant at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Options 1, 2, and 3.	Not applicable	Not applicable
<i>Operation</i>		
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 that would cause or contribute to physical division of communities. Therefore, no impacts are anticipated under Build Alternative Option 1, 2, or 3.	Not applicable	Not applicable
Eastern Section – Potentially Significant. Potentially significant impacts may result with implementation of Build Alternative Option 1, 2, or 3. Potential impacts due to population growth are dependent on the location of new infrastructure improvements. Build Alternative Options 1, 2, and 3 may result in new infrastructure that may result in additional growth within the Eastern Section of the Program Corridor. Site-specific impacts would be identified and evaluated during the Tier 2/Project-level analysis.	PH-1 LU-3	Less than Significant. PH-1 and LU-3 would minimize, reduce, or avoid potential impacts through design and further analysis.

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
<i>Would the Program displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?</i>		
<i>Construction</i>		
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 in the Western Section under Build Alternative Options 1, 2, and 3.	Not applicable	Not applicable
Eastern Section – Potentially Significant. Potentially significant impacts may result with implementation of Build Alternative Option 1, 2, or 3. Potential impacts due to displacing substantial numbers of existing people or housing are dependent on the location of infrastructure improvements, which are currently unknown. The Program may require the acquisition of land neighboring the ROW. Site-specific impacts would be identified and evaluated during the Tier 2/Project-level analysis.	PH-1	Less than Significant. PH-1 would minimize, reduce, or avoid potential impacts from displacing substantial numbers of existing people or housing through the implementation of a relocation mitigation plan.
<i>Operation</i>		
Western Section – No Impact. Operational activities in the Western Section include the maintenance of existing rail infrastructure and station facilities. These maintenance activities are not anticipated to require activities that could result in the impacts associated with displacement of people that would require replacement housing. Therefore, no operational impacts are 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
<p>Eastern Section – No Impact. Operational activities in the Eastern Section include the maintenance of existing rail infrastructure and station facilities. These maintenance activities are not anticipated to require activities that could result in the impacts associated with displacement of people that would require replacement housing. Therefore, no operational impacts are anticipated at the Tier 1/Program EIS/EIR evaluation level under Build Alternative Option 1, 2, or 3.</p>	<p>Not applicable</p>	<p>Not applicable</p>

Notes:

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

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3.16.8 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. Proposed programmatic mitigation strategies, consistent with state and federal regulations, could include, but are not limited to, the following:

Mitigation Strategy PH-1: During Tier 2/Project-level analysis, any required acquisitions related to the construction of infrastructure improvements (such as sidings, additional main line track, wayside signals, drainage, grade-separation structures, and stations) shall be identified. If the proposed Project would have the potential to result in property acquisitions that would require residential or commercial displacement, a relocation mitigation plan shall be prepared, in consultation with affected property owners. The relocation mitigation plan shall be designed to meet the following objectives:

- Provide affected property and business owners and tenants a high level of individualized assistance in situations when acquisition is necessary, and the property owner desires to relocate the existing use
- Coordinate relocation activities that would result in displacements to ensure all displaced persons and businesses receive fair and consistent relocation benefits
- Minimize the permanent closure of businesses and non-profit agencies as a result of property acquisition
- Within the limits established by law and regulation, minimize the economic disruption caused to property owners by relocation
- Provide regulatory compliance assistance to those business owners who require complex permitting

The relocation mitigation plan shall include, but not be limited to, the following components:

- A description of the appraisal, acquisition, and relocation process, as well as a description of the activities of the appraisal and relocation specialists
- A means of assigning appraisal and relocation staff to affected property owners, tenants, or other residents on an individual basis
- Individualized assistance to affected property owners, tenants, or other residents in applying for funding and researching areas for relocation

- Identification of a single point of contact for property owners, residents, and tenants with questions about the relocation process. This point of contact shall also act to address concerns about the relocation process; it applies to the individual situations of property owners, tenants, and other residents

Mitigation Strategy LU-2: Based on the results of Tier 2/Project-level analysis and recommendations, a construction management plan shall be developed by the contractor prior to construction and implemented during construction activities. The construction management plan shall include, but is not 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 Tier 2/Project-level analysis, a land use consistency analysis shall be conducted to determine consistency with the applicable local jurisdictional general plans or programs. Recommendations shall be identified to avoid or minimize conflicts with sensitive land uses or environmental resources.

3.17 Cumulative Effects

3.17.1 Introduction

This section provides an evaluation of overall cumulative effects associated with the Build Alternative Options and No Build Alternative taken together with other past, present, and probable future projects producing related effects, as required by the CEQA Guidelines (14 CCR Section 15130) and reasonably foreseeable future projects under NEPA implementing regulations (40 CFR Part 1508.7).

This analysis has two primary purposes: to determine whether the overall long-term effects of all cumulative projects would be cumulatively adverse and to determine whether the Program itself would cause a cumulatively considerable (and thus adverse) incremental contribution to any such cumulatively adverse effect (CEQA Guidelines [CCR Sections 15064(h), 15065(c), 15130(a), 15130(b), and 15355(b)]). In other words, the required analysis first creates a broad context in which to evaluate the Program's incremental contribution to anticipated cumulative effects, viewed on a geographic scale well beyond the Program. The analysis then determines whether the Program's incremental contribution to any adverse cumulative effects from all projects is itself adverse (i.e., cumulatively considerable). This section presents a discussion of cumulative effects according to the presentation of each resource issue area identified in Sections 3.2 through 3.16 of this Tier 1/Program EIS/EIR.

3.17.2 Regulatory Framework

Federal

NEPA

CEQ regulations implementing provisions of NEPA define cumulative effects as “the effect on the environment which results from the incremental effect of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions” (40 CFR Part 1508.7). Cumulative effects can result from individually minor, but collectively adverse, actions over time (40 CFR Part 1508.8). They are caused by the incremental increase in total environmental effects when the evaluated project is added to other past, present, and reasonably foreseeable future actions. Cumulative effects can thus arise from causes that are totally unrelated to the project being evaluated, and the analysis of cumulative effects looks at the life cycle of the effects, not the project at issue.

State

CEQA

Cumulative effects are defined in the CEQA Guidelines (CCR Section 15355) as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental effects.” A cumulative effect occurs from “the change in the environment which results from the incremental effect of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative effects can result from individually minor but collectively adverse projects taking place over a period of time” (CCR Section 15355[b]).

Consistent with the CEQA Guidelines (CCR Section 15130[a]), the discussion of cumulative effects in this Tier 1/Program EIS/EIR focuses on adverse and potentially adverse cumulative effects. The CEQA Guidelines (CCR Section 15130[b]) state that:

The discussion of cumulative effects shall reflect the severity of the effects and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the Project alone. The discussion should be guided by the standards of practicality and reasonableness and should focus on the cumulative effect to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative effect.

3.17.3 Methods for Evaluating Environmental Effects

The CEQA Guidelines identify two basic methods for establishing the cumulative environment in which the Program is to be considered: the use of a list of past, present, and probable future projects (i.e., the list approach) or the use of adopted projections from a general plan, other regional planning document, or certified EIR for such a planning document (i.e., the plan approach). Either of these methodologies also fulfills the NEPA requirements for cumulative effect analysis (CEQ 1997a). For this Tier 1/Program EIS/EIR evaluation, the list approach was utilized to generate the most reliable future projections possible for assessing potential cumulative effects at the regional scale and temporally over the duration of Program construction and future operation.

Publicly available documents were reviewed in accordance with CEQA and NEPA guidelines on assessing cumulative effects, including the following:

- Identification of major transportation projects in the Tier 1/Program EIS/EIR Study Area, as defined in Chapter 2, Program Alternatives, through planning documents and transportation improvement plans

- Internet sources, such as agency or news websites
- Land use information

To correspond to the level of detail associated with this Tier 1/Program EIS/EIR evaluation, the list of past, present, and reasonably foreseeable future related projects includes broader categories of projects and actions, rather than site-specific projects. During the Tier 2/Project-level analysis, when infrastructure improvement and station locations have been identified, site-specific projects would be analyzed for cumulative effects.

3.17.4 Affected Environment

The cumulative context includes the geographic area, timeframe, and/or type of projects or planning activities that would contribute to the potential cumulative effect. This context may differ for each resource issue area because the geographic range considered for the cumulative analysis can vary based on the resource area. Table 3.17-1 presents the projects considered as part of the regional cumulative analysis within the Program Corridor. State, regional, and local planning documents were reviewed and considered as part of the cumulative analysis in this Tier 1/Program EIS/EIR evaluation.

The list of past, present, and probable future projects used for this cumulative analysis is restricted to major development, transportation, and infrastructure projects that overlap with the Tier 1/Program EIS/EIR Study Area. For the purposes of this cumulative analysis, the projects that may have a cumulative effect on resources considered in this Tier 1/Program EIS/EIR evaluation are referred to as the cumulative projects. These projects are identified in Table 3.17-1. The analysis of cumulative environmental effects associated with the Build Alternative Options and No Build Alternative addresses the potential incremental contributions of the Program to cumulative environment effects in combination with these related projects. The list of projects in Table 3.17-1 is not intended to be an all-inclusive list of projects, but rather an identification of larger projects approved or planned within the Tier 1/Program EIS/EIR Study Area that could contribute to cumulative effects for one or more resources.

3.17.5 Environmental Consequences

Overview

The following section discusses the potential for the Program to result in cumulatively considerable effects together with the related projects and regional development (Table 3.17-1) for each of the environmental issue areas evaluated in Chapter 3, Environmental Analysis, Consequences, and Mitigation, of this Tier 1/Program EIS/EIR.

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Table 3.17-1. Cumulative Projects

Project Identification	Project Title	Project Description	Location	Stage/Schedule ^a	Construction ^b	Operation ^c
1	California HSR System – Burbank to Los Angeles and Los Angeles to Anaheim Project Sections	<p>California High-Speed Rail Authority is planning for the introduction of the HSR system from San Francisco to the Los Angeles basin by 2033. The Burbank to Los Angeles Project Section would extend from LAUS to the north, and the Los Angeles to Anaheim Project Section would extend from LAUS to the south.</p> <p>California High-Speed Rail Authority would conduct a full project-level environmental review for the planned HSR system, including the construction and operational environmental evaluation for the entirety of the planned HSR system.</p>	Various locations within Los Angeles County	Anticipated between 2033 and 2035	No	Yes
2	Metro Division 20 Portal Widening and Turnback Facility	To accommodate increased service levels on the Metro Red/Purple Lines, Metro is planning critical facility improvements, including a widening of the heavy rail tunnel south of US-101 (Portal Widening) and a new turnback facility (Turnback Facility) in the Division 20 rail yard. With these improvements, new tracks and switches would allow trains to turn around more quickly at LAUS.	Division 20 rail yard	Under construction; anticipated project completion in 2023	No	Yes

Project Identification	Project Title	Project Description	Location	Stage/Schedule ^a	Construction ^b	Operation ^c
3	Regional Connector Transit Project – Little Tokyo/Arts District Station (at 1st Street/Central Avenue)	The 1.9-mile Metro Regional Connector Transit Project includes development of three new stations, including one located on the southeast corner of 1st Street and Central Avenue.	LAUS, First Street, and Central Avenue	Under construction; operational in 2022	No	Yes
4	Link Union Station	The project proposes to reconstruct the track and station infrastructure at LAUS to meet long-term rail travel needs and improve passenger comfort, safety, and ease of navigation through the facility.	LAUS	Final EIR for the Link Union Station Project was approved in June 2019; a Draft EIS is under preparation	No	Yes
5	Third Main Line Track Project	The project would provide 32 additional passenger/commuter slots between Los Angeles and Fullerton	15 miles between Los Angeles and Fullerton within BNSF's ROW	Construction underway	No	Yes
6	2159 Bay Street Project	The project includes development of a three-building office campus that would be comprised of an eight-story commercial high-rise building and two two-story commercial buildings.	Los Angeles	NOC issued	No	No

Project Identification	Project Title	Project Description	Location	Stage/Schedule ^a	Construction ^b	Operation ^c
7	Rosecrans/Marquardt Grade Separation Project	The project proposes to improve the safety and track flow of the Rosecrans and Marquardt Avenues intersection by eliminating the existing at-grade crossing of BNSF's San Bernardino Subdivision, which runs diagonally through the intersection of the two streets, and replacing it with an overpass that would carry Rosecrans Avenue above the tracks.	City of Santa Fe Springs	Under construction; anticipated completion in 2023	No	Yes
8	Norwalk/Los Nietos Grade Separation	The project proposes grade separation on BNSF's San Bernardino Subdivision in the City of Santa Fe Springs.	City of Santa Fe Springs	Proposed	No	Yes
9	Lakeland Road Grade Separation	The project proposes grade separation on BNSF's San Bernardino Subdivision in the City of Santa Fe Springs.	City of Santa Fe Springs	Proposed	No	Yes
10	Pioneer Boulevard Grade Separation	The project proposes grade separation on BNSF's San Bernardino Subdivision in the City of Santa Fe Springs.	City of Santa Fe Springs	Proposed	No	Yes
11	San Bernardino Freeway (I-10) High-Occupancy Vehicle-Lane Project (Caltrans)	The project proposes construction of one high-occupancy vehicle lane along the San Bernardino Freeway (I-10) in each direction between the San Gabriel River Freeway (I-605) and Orange Freeway (SR 57).	City of West Covina	Under construction; anticipated to completed by Summer 2021	No	Yes

Project Identification	Project Title	Project Description	Location	Stage/Schedule ^a	Construction ^b	Operation ^c
12	Westbound SR 91 Project	The project proposes improvements, include widening the SR 91 by adding one new general-purpose lane in the westbound direction in Cerritos and Artesia.	Cities of Cerritos and Artesia	Notice of determination issued; construction anticipated to start in 2021	No	No
13	Santa Ana River Trail – Phase 1 Project (RCTC)	The project proposes a 12.8-mile trail along the Santa Ana River Trail system, connecting Orange, Riverside, and San Bernardino Counties. This portion of the trail along the Prado Basin would facilitate pedestrian, equestrian, and cycling trail use with nature-viewing opportunities, and provide a non-motorized transit route that would not otherwise exist in the area.	West of Norco	Engineering and environmental studies are underway	No	No
14	West of Devers Upgrade Project (Southern California Edison)	The project includes the removal and upgrade of existing 220-kilovolt transmission lines.	Riverside and San Bernardino Counties	Under construction; anticipated completion in 2022	No	No

Project Identification	Project Title	Project Description	Location	Stage/Schedule ^a	Construction ^b	Operation ^c
15	Coachella Valley Link (Coachella Valley Association of Governments)	Coachella Valley Link is a 50-mile, alternative transportation corridor for bicycles, pedestrians, and low-speed (up to 25 miles per hour) electric vehicles along the Whitewater River and Tahquitz Creek that would initially stretch from Palm Springs to Coachella.	Palm Springs to Coachella	First segment constructed; construction anticipated to start on additional 20-mile segment in early 2021 once construction contracts have been authorized	Yes	Yes
16	Agua Caliente Casino expansion Project	The Agua Caliente Band of Cahuilla Indians proposes an expansion of the Agua Caliente Casino Resort Spa.	Rancho Mirage	Proposed; NOP for Tribal EIR issued	Yes	Yes
17	Agua Caliente Band of Cahuilla Indians Cathedral City Fee-to-Trust Casino Project	The Agua Caliente Band of Cahuilla Indians proposed to build a gaming facility and ancillary amenities on land it owns within the City of Cathedral City.	Cathedral City	Under construction	Yes	Yes
18	Rehabilitate Whitewater River Bridges Project	The project would include rehabilitation of two bridges located on I-10 between Tipton Road and Kellogg Road at Milepost 27.69.	Palm Springs	Notice of determination issued	Yes	No

Project Identification	Project Title	Project Description	Location	Stage/Schedule ^a	Construction ^b	Operation ^c
19	2017/18 Non-Potable Water Connections Project (Coachella Valley Water District)	The project proposes construction and operation of approximately 9.5 miles of non-potable water pipeline segments and connections to provide irrigation water for several locations.	Palm Desert and Bermuda Dunes	Notice of determination issued	Yes	No
20	20/21 Non-Potable Water Connections Project (Coachella Valley Water District)	The project proposes construction and operation of approximately 12.9 miles of non-potable water pipeline segments and connections to provide irrigation water for several locations.	Palm Desert, Thousand Palms, Rancho Mirage, Indian Wells, and La Quinta	Notice of determination issued	Yes	No

Notes:

^a Information available as of March 2021.

^b The project has the potential to overlap in time or location with the Program. Tier 2/Project-level analysis would consider updates to construction schedules.

^c The operation of the project has the potential to have cumulative impacts with the Program.

Caltrans=California Department of Transportation; EIR=environmental impact report; EIS=environmental impact statement; HSR=high-speed rail; I=Interstate; LAUS=Los Angeles Union Station; Metro=Los Angeles County Metropolitan Transportation Authority; NOC=notice of completion; NOP=notice of preparation; RCTC=Riverside County Transportation Commission; ROW=right-of-way; SR=State Route; US-101=United States Highway 101

No Build Alternative

The No Build Alternative, as described in Chapter 2, Program Alternatives, of Tier 1/Program EIS/EIR is used as the baseline for comparison. The No Build Alternative would not implement the Program associated with this service-level evaluation and would not meet the Purpose and Need of the Program. Counties and cities in the Program Corridor would continue to grow, which would increase regional transportation demand; therefore, the No Build Alternative assumes completion of those reasonably foreseeable transportation, development, and infrastructure projects that are already in progress, are programmed, or are included in the fiscally constrained RTP.

Cumulative Land Use and Planning Effects

The No Build Alternative would not be consistent with federal, state, and local plans and policies that promote expansion of existing transportation options and multimodal connectivity throughout the region. Therefore, traffic congestion is likely to worsen with the No Build Alternative, resulting in air quality impacts and potentially additional noise impacts on the surrounding land uses, which could disrupt established communities adjacent to existing transportation corridors.

Cumulative Transportation Effects

Under the No Build Alternative, accommodation of additional future transportation demand resulting from continued local and regional growth would be limited by the existing transportation infrastructure's capacity and capacity increases resulting from other approved projects in the region. An increase in traffic and VMT is expected under the No Build Alternative because more cars would be on the roadways compared with what would occur with implementation of the Program. Therefore, the No Build Alternative could result in air quality impacts and potential additional noise impacts on the surrounding land uses, which could disrupt established communities adjacent to existing transportation corridors. However, disruption of established communities related to construction and operation of the Program would be avoided.

Cumulative Visual Quality and Aesthetic Effects

Under the No Build Alternative, an enhanced passenger rail system would not be built, and impacts on visual quality and aesthetics are not anticipated beyond those that would occur as a result of other reasonably foreseeable transportation, development, and infrastructure projects.

Cumulative Air Quality and Greenhouse Gases Effects

Under the No Build Alternative, an increase in traffic and VMT is expected because more cars would be on the roadways compared with what would occur with implementation of enhanced passenger rail service within the Program Corridor. Therefore, traffic congestion is likely to worsen with the No Build Alternative, resulting in air quality impacts. With the continued trend in substantial increases in VMT within the Program Corridor, energy consumption and GHG emissions would likely increase under the No Build Alternative.

Cumulative Noise and Vibration Effects

Under the No Build Alternative, no construction or increase in noise level that would be associated with Program implementation would occur. Ambient noise and vibration levels from existing train operations and local traffic would continue; however, an increase in traffic and VMT is expected under the No Build Alternative because more cars would be on the roadways compared with what would occur with implementation of the Program. Therefore, the No Build Alternative could result in potential additional noise impacts on the surrounding land uses, which could disrupt established communities adjacent to existing transportation corridors.

Cumulative Jurisdictional Waters and Wetlands Effects

Under the No Build Alternative, an enhanced passenger rail system would not be built, and impacts on jurisdictional waters and wetland resources are not anticipated beyond those that would occur as a result of other reasonably foreseeable transportation, development, and infrastructure projects.

Cumulative Biological Resource Effects

Under the No Build Alternative, an enhanced passenger rail system would not be built, and impacts on biological resources are not anticipated beyond those that would occur as a result of other reasonably foreseeable transportation, development, and infrastructure projects.

Cumulative Floodplains, Hydrology, and Water Quality Effects

Under the No Build Alternative, an enhanced passenger rail system would not be built; therefore, impacts on floodplains, hydrology, and water quality are not anticipated beyond those that would occur as a result of other reasonably foreseeable transportation, development, and infrastructure projects.

Cumulative Geology, Soils, Seismicity, and Paleontological Resource Effects

Under the No Build Alternative, an enhanced passenger rail system would not be built; therefore, geology, soils, seismicity, or paleontological resource impacts are not anticipated beyond those that would occur as a result of other reasonably foreseeable transportation, development, and infrastructure projects.

Cumulative Hazard and Hazardous Material Effects

Under the No Build Alternative, an enhanced passenger rail system would not be built; therefore, hazards and hazardous materials impacts are not anticipated beyond those that would occur as a result of other reasonably foreseeable transportation, development, and infrastructure projects.

Cumulative Public Utilities and Energy Effects

Under the No Build Alternative, existing utility infrastructure and energy use within the Program Corridor would be unaffected, and the energy associated with on-road vehicle travel would not be reduced. With the continued trend in increases in VMT and energy consumption within the Program Corridor associated with local and regional growth, cumulative energy effects would likely increase under the No Build Alternative.

Cumulative Cultural Resource Effects

Under the No Build Alternative, an enhanced passenger rail system would not be built. Therefore, impacts on cultural resources are not anticipated beyond those that would occur as a result of other reasonably foreseeable transportation, development, and infrastructure projects.

Cumulative Parkland and Community Service Effects

Under the No Build Alternative, an enhanced passenger rail system would not be built. Therefore, impacts on parklands or community services are not anticipated beyond those that would occur as a result of other reasonably foreseeable transportation, development, and infrastructure projects.

Cumulative Safety and Security Effects

Under the No Build Alternative, no Program construction activities or increase in passenger rail service would occur. However, existing train operations and local traffic would continue, and the Los Angeles Basin and San Gorgonio Pass would continue to face substantial mobility challenges as growth in population, employment, and tourism activity is expected to generate increased travel demand. Traffic volumes in the Los Angeles Basin and San Gorgonio Pass would likely increase,

contributing to a likely increase in traffic accidents. In addition, with increases in traffic volumes, the potential for crossing conflicts on existing rail lines would also likely increase.

Cumulative Socioeconomic and Community Effects

Under the No Build Alternative, an enhanced passenger rail system would not be built; however, existing train operations and local traffic would continue within the Program Corridor. An increase in traffic and VMT is expected under the No Build Alternative because more cars would be on the roadways compared with what would occur with implementation of the Program. Therefore, the No Build Alternative could result in air quality impacts and potential additional noise impacts on the surrounding land uses, which could disrupt established communities adjacent to existing transportation corridors. Disruption of established communities related to construction and operation of the Program would be avoided.

Benefits associated with increases in economic growth (e.g., creation of new jobs and services) or fiscal gains (e.g., additional revenue from operation of passenger trains and stations) from implementation of the Program would not occur under the No Build Alternative beyond those that would occur as a result of other reasonably foreseeable transportation, development, and infrastructure projects.

Build Alternative Options 1, 2, and 3

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 infrastructure improvements (such as sidings, additional main line track, wayside signals, drainage, grade-separation structures, and stations) to accommodate the proposed service within the Western Section of the Program. For the Eastern Section of the Program, construction of rail infrastructure improvements and station facilities would be required.

During operation, 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. Operational activities are anticipated to be limited to maintenance of culverts, bridges, embankments, and station areas, which are not anticipated to result in ground-disturbing activities.

Cumulative Land Use and Planning Effects

WESTERN SECTION

Operation of any of the Build Alternative Options would utilize existing rail infrastructure and station facilities and would not change existing land uses or result in effects on agricultural resources within the Western Section of the Program Corridor. Based on these considerations, cumulative effects on land use and agricultural resources are not anticipated within the Western Section under Program implementation.

EASTERN SECTION

Implementation of the Program under any of the Build Alternative Options would require the construction of rail infrastructure improvements and station facilities within the Eastern Section of the Program Corridor. Construction of rail infrastructure improvements is anticipated to mainly occur within the existing rail ROW; however, construction of new station facilities may require land use acquisition and potential amendments to local planning documents. Implementation of the Program under any of the Build Alternative Options could result in temporary land use compatibility effects with adjacent land uses and sensitive receptors. However, the identification of specific sensitive receptors near the rail infrastructure improvements and station locations and a review of land use consistency would be identified and evaluated during the Tier 2/Project-level analysis.

The Build Alternative Options, in combination with planned projects including residential, transportation, and commercial projects under the cumulative condition, would also result in changes in the pattern and density of land uses during construction if construction of the Build Alternative Options occurs at the same time as construction of other planned projects. This could result in a cumulative effect on various land uses if they become part of, or are near, a temporary construction easement, such as a staging area. These types of impacts, which could include visual changes, lighting and glare, increased air quality emissions, noise and vibration, and increased traffic, would be limited to the construction activities and temporary. Generally, affected parcels would be returned to previous/existing land use functions in the same or better condition as before their use.

Although these effects would be temporary, when combined with other planned projects, they could be cumulatively considerable. To address these potentially cumulatively considerable impacts, mitigation could include, but is not limited to, the preparation and implementation of a construction management plan, which would detail construction BMPs to reduce or eliminate potential air, noise, visual, traffic, and other construction impacts. Generally, the application of construction BMPs would minimize, reduce, or avoid land use impacts. Site-specific construction effects, along with applicable and appropriate mitigation measures to minimize those effects, would be identified and evaluated at the Tier 2/Project-level analysis.

For agricultural resources, cumulative effects on farmland could occur if future development and transportation projects, in combination with the Build Alternative Options, result in additional land use conversions. When planned projects are within existing transportation corridors, it is not anticipated that there would be cumulative effects on agricultural resources. However, if existing areas of farmland are converted to transportation-related or urban development use, there would be cumulative effects with the Build Alternative Options if the conversions are adjacent to or outside the existing transportation corridor and result in areas being bisected or isolated.

Operation of the Build Alternative Options within the Eastern Section could result in impacts on adjacent, sensitive land uses due to the increase in rail activity at new station facilities. These effects could result in a cumulative impact if combined with additional operational impacts from other projects. However, substantial growth is projected in the Eastern Section of the Build Alternative and the cities and communities along the Build Alternative Alignment. Under the cumulative condition, local land use plans and projects are planned to accommodate that growth. Generally, development would occur in the framework of existing general or specific plans of the municipality in which it occurs. Planning documents relevant to the municipalities (including land use elements of general plans, community plans, and other planning documents) generally encourage infill and higher-density development near transit corridors to provide more travel choices. Local jurisdictions are implementing these policies regardless of whether a project is constructed.

Cumulative Transportation Effects

WESTERN SECTION

Cumulative traffic effects may occur when more than one project has an overlapping construction schedule that generates excessive construction-related traffic. No new rail infrastructure or station facilities would be constructed in the Western Section under any of the Build Alternative Options. Therefore, construction-related effects on transportation are negligible, and cumulative transportation effects are not anticipated within the Western Section.

Operation of the Build Alternative Options within the Western Section would result in an additional two daily, round-trip passenger trains operating within the existing rail railway and accessing existing stations. During operation, local traffic volumes and parking demand is likely to increase around and at the existing stations due to increases in ridership, which could combine with cumulative traffic generated by other local development projects. In addition, anticipating population growth and accompanying development in the Western Section's metropolitan areas would likely contribute to the cumulative local transportation effects. However, as population growth occurs in these urban areas of the Western Section, there would be a greater number of transportation users and a potentially greater cumulative shift in mode share as rail becomes a more effective alternative

transportation mode within the Program Corridor. This could result in a cumulative reduction in VMT and highway congestion.

EASTERN SECTION

Implementation of the Program under any of the Build Alternative Options would require the construction and operation of rail infrastructure improvements and station facilities within the Eastern Section of the Program Corridor. In the Eastern Section, future planned projects and development could have the potential to cause cumulative local transportation effects during construction if the timing of the Build Alternative Options and projects overlap. Potential increases in vehicle trip generation would vary based on the project type, location, schedule, size of workforce, equipment needs, and other factors. The distribution of construction trips on the road network would also depend on the location of individual projects and the project staging area. While construction activities for the Build Alternative Options would be temporary, such effects would be cumulatively long term given that construction could be ongoing for many years and could combine with other nearby construction projects.

During operation, cumulative effects on local traffic conditions and parking could occur in areas where new development is proposed, combined with the increases in local traffic and parking demand around and at the stations due to increases in rail ridership. However, as population growth occurs within the Eastern Section, there would also be a greater number of transportation users, and a potentially greater cumulative shift in mode share as rail becomes a more effectively alternative transportation mode within the Program Corridor. Therefore, operation of the Build Alternative Options in the Eastern Section is anticipated to reduce vehicle trips and VMT on the regional highways, improve safety, and reduce congestion resulting in a cumulative reduction in VMT and highway congestion.

From a cumulative impact context, future regional and local projects would accommodate increased traffic, reduce congestion, and enhance safety for motorists in the long term. Operation of the Build Alternative Options in the Eastern Section would provide transportation alternatives for regional travel, potentially reducing the number of automobiles travelling across the Eastern Section of the Program Corridor. Taken together, these transportation projects would provide a cumulative regional improvement to transportation circulation and access in the region.

Cumulative Visual Quality and Aesthetics Effects

WESTERN SECTION

No new rail infrastructure or station facilities would be constructed in the Western Section under any of the Build Alternative Options. Therefore, construction-related effects on visual quality and aesthetics are negligible, and cumulative visual quality and aesthetic effects are not anticipated within the Western Section. Operation of the Build Alternative Options within the Western Section would result in an additional two daily, round-trip passenger trains operating within the existing railway and accessing existing stations. The operation of the Build Alternative Options within the Western Section would not change the existing visual environment and would result in a negligible effect on visual quality and aesthetics. Therefore, the Build Alternative Options would result in no cumulative effects on visual resources within the Western Section of the Program Corridor.

EASTERN SECTION

Implementation of the Program under any of the Build Alternative Options would require the construction of rail infrastructure improvements and station facilities within the Eastern Section of the Program Corridor. The Build Alternative Options, in combination with planned projects, could cumulatively contribute to light sources during construction or operation.

The operation of additional passenger rail trains along the rail ROW within the Eastern Section would result in relatively minor physical changes to the landscape seen by sensitive viewers. These changes would likely be unnoticeable or barely noticeable to sensitive viewers and is not anticipated result in cumulative effects on aesthetics and visual quality. However, once constructed and operational, built elements would be introduced throughout the Eastern Section in the form of tracks, grade-separated ROWs, and station facilities. Visual changes resulting from these build elements would also be introduced in the form of landform alterations associated with grading/realignment, lighting and signage, and roadway realignments. Visual effects may occur if permanent elements of the Program block views of important visual resources, negatively alter the existing visual character, or introduce new sources of light or glare that have an adverse effect on adjacent land uses. Combined with other planned projects, there is the potential for the Build Alternative Options to cumulatively contribute to effects on aesthetic and visual quality within the Eastern Section, particularly in suburban and rural areas where population growth and related development could occur.

Cumulative Air Quality and Greenhouse Gases Effects

WESTERN SECTION

No new rail infrastructure or station facilities would be constructed in the Western Section under any of the Build Alternative Options. Therefore, construction-related effects on air quality and GHGs are negligible, and cumulative air quality and GHG effects are not anticipated within the Western Section. Based on current ridership projects, it is expected that during operation, the Build Alternative Options would result in a reduction in VMT. This reduction in VMT would result in lower regional air emissions relative to the No Build Alternative. Therefore, the Build Alternative Options would result in beneficial cumulative effects during operation when combined with other planned projects within the Western Section of the Program.

EASTERN SECTION

Implementation of the Program under any of the Build Alternative Options would require the construction of rail infrastructure improvements and station facilities within the Eastern Section of the Program Corridor. Temporary construction emissions are expected from implementation of any of the Build Alternative Options; however, air quality and GHG emissions would vary daily depending on the level of construction activity, specific operation of construction equipment, and duration of construction activities. Future planned projects and developments, such as the Agua Caliente Casino Resort expansion, which is adjacent to the Build Alternative Options, would have the potential to cause cumulative air quality and GHG effects during construction if the timing of the projects overlap. However, these potential cumulative effects would be analyzed during Tier 2/Project-level analysis.

Under the cumulative condition within the Eastern Section of the Program Corridor, planned infrastructure and development projects would result in more vehicles on the roadway and increased emissions of air pollutants and GHGs. However, as population growth occurs in the Eastern Section of the Program Corridor, there would also be a greater number of transportation uses, and a potentially greater cumulative shift in mode share as rail becomes an effective alternative transportation mode within the Program Corridor. Therefore, the cumulative effects of the Build Alternative Options with other planned transit projects are anticipated to promote decreased reliance on highway travel while reducing regional emissions of air pollutants and GHGs.

Cumulative Noise and Vibration Effects

WESTERN SECTION

No new rail infrastructure or station facilities would be constructed in the Western Section under any of the Build Alternative Options. Therefore, construction-related effects on noise and vibration are negligible and cumulative noise and vibration effects are not anticipated within the Western Section. Operation of the Build Alternative Options within the Western Section would result in an additional two daily, round-trip passenger trains operating within the existing railway and accessing existing stations. The operation of the Build Alternative Options within the Western Section would not change the existing noise environment and would result in a negligible effect on noise and vibration. Therefore, the Build Alternative Options would result in no cumulative increase in noise or operational vibration, and cumulative effects would be negligible.

EASTERN SECTION

Implementation of the Program under any of the Build Alternative Options would require the construction of rail infrastructure improvements and station facilities within the Eastern Section of the Program Corridor. Construction activities may result in moderate noise and vibration effects on sensitive noise receptors within, or adjacent to, construction sites identified for the specific rail infrastructure improvement or station facility. There is the potential for cumulative noise and vibration effects during construction within the Eastern Section of the Program Corridor, particularly where a rail infrastructure improvement or station facility and other future transportation and development projects would be constructed adjacent to sensitive land uses. However, the temporary nature of the construction activities, adherence to local noise ordinances, and the use of construction BMPs would likely minimize the potential for cumulative effects.

Operation of the Build Alternative Options within the Eastern Section would result in an additional two daily, round-trip passenger trains operating within the existing rail railway and accessing station facilities. The operation of the Build Alternative Options within the Eastern Section could change the existing noise environment (through the provision of new noise generating sources) and would result in a moderate effect on noise and vibration. Population growth and accompanying development within the Eastern Section would also contribute to increased noise and vibration levels. However, it is anticipated that operational noise and vibration effects of the Build Alternative Options would be avoided, minimized, and mitigated at the Tier 2/Project-level analysis, which would reduce the potential for cumulative effects.

Cumulative Jurisdictional Waters and Wetland Resource Effects

WESTERN SECTION

No new rail infrastructure or station facilities would be constructed in the Western Section under any of the Build Alternative Options. Therefore, construction-related effects on jurisdictional waters and wetlands are negligible, and cumulative effects are not anticipated within the Western Section with implementation of the Program. Operation of the Build Alternative Options within the Western Section would result in an additional two daily, round-trip passenger trains operating within the existing rail railway and accessing existing stations. The operation of the Build Alternative Options within the Western Section would not require modification to jurisdictional waters or wetlands, resulting in a cumulative negligible effect on these resources.

EASTERN SECTION

Implementation of the Program under any of the Build Alternative Options would require the construction of rail infrastructure improvements and station facilities within the Eastern Section of the Program Corridor. Construction activities may result in moderate effects on jurisdictional waters or wetland resources through the permanent removal of wetland area and additional pollutants entering wetland or jurisdictional water areas. The severity of effects is dependent on the location of new rail infrastructure and station facilities, temporary roads, laydown yards, and other Program-related components.

Cumulative projects identified within the Eastern Section of the Program Corridor would result in an increase in impervious surfaces that have the potential to cause additional runoff or the removal of wetlands, which would increase the severity of the effects. Therefore, effects associated with the Build Alternative Options, in combination with development associated with growth and planned projects, would contribute to a cumulative effect on jurisdictional waters and wetlands in the Eastern Section. However, the effects of the Build Alternative Options on jurisdictional waters and wetlands would be avoided, minimized, and mitigated at the Tier 2/Project-level analysis, when feasible, which would reduce the potential for cumulative effects.

Cumulative Biological Resource Effects

WESTERN SECTION

No new rail infrastructure or station facilities would be constructed in the Western Section under any of the Build Alternative Options. Therefore, construction-related effects on biological resources are negligible, and cumulative effects are not anticipated within the Western Section with implementation of the Program. Operation of the Build Alternative Options within the Western Section would result in an additional two daily, round-trip passenger trains operating within the existing rail railway and

accessing existing stations. Operational activities associated with the two daily, round-trip intercity passenger trains are anticipated to have negligible effects on special-status plant species, wildlife species, or wildlife movement corridors. Wildlife that may be present within the Western Section of the Program Corridor have been exposed to disturbances associated with railroad operations and habituated to existing noise and vibrations associated with railroad operations. Therefore, the operation of the Build Alternative Options within the Western Section would remain similar to existing conditions, resulting in a negligible cumulative effect on biological resources.

EASTERN SECTION

Implementation of the Program under any of the Build Alternative Options would require the construction of rail infrastructure improvements and station facilities within the Eastern Section of the Program Corridor. Construction activities may result in substantial effects on biological resources within, or adjacent to, construction sites identified for the specific rail infrastructure improvement or station facility. Construction effects could include removal or disturbance of vegetation, dust, soil compaction, accidental spills, habitat degradation, separation or fragmentation, erosion and runoff, altered hydrology, risk of fire, introduction of invasive or noxious plant species, noise and vibration, and potential for equipment or vehicles strikes. Severity of effects is dependent on the location of new infrastructure, temporary roads, laydown yards, and other Program-related components in relation to potential biological resources that may be present. There is the potential for cumulative biological resources effects during construction within the Eastern Section of the Program Corridor, particularly where a rail infrastructure improvement or station facility and other future transportation and development projects would be constructed adjacent to biological resources. Therefore, the Build Alternative Options would result in a potential cumulative effect on biological resources within these areas. The effects of the Build Alternative Options on biological resources would be avoided, minimized, and mitigated at the Tier 2/Project-level analysis, when feasible, which would reduce the potential for cumulative effects.

Operation of the Build Alternative Options within the Eastern Section would result in an additional two daily, round-trip passenger trains operating within the existing rail railway. Although operational activities are anticipated to be the same at the stations within the Eastern Section as they are in the Western Section, the station facilities could result in moderate effects on biological resources as they could be constructed adjacent to areas containing biological resources. Due to the anticipated population growth and associated development within the Eastern Section, the Build Alternative Options could have a cumulative effect on biological resources. However, the effects of the Build Alternative Options on biological resources would be avoided, minimized, and mitigated at the Tier 2/Project-level, when feasible, which would reduce the potential for cumulative effects.

Cumulative Floodplains, Hydrology, and Water Quality Effects

WESTERN SECTION

No new rail infrastructure or station facilities would be constructed in the Western Section under any of the Build Alternative Options. Therefore, construction-related effects on floodplains, hydrology, and water quality are negligible, and cumulative effects on these resources are not anticipated within the Western Section. Operation of any of the Build Alternative Options within the Western Section of the Program Corridor would remain within the existing rail ROW, and station facilities and would not introduce new pollutants or result in new effects on floodplains, hydrology, and water quality. As a result, operational activities would have a negligible effect on floodplains, hydrology, and water quality, and it is unlikely that any of the Build Alternative Options would contribute to cumulative water quality effects within the Western Section.

EASTERN SECTION

Implementation of the Program under any of the Build Alternative Options would require the construction of rail infrastructure improvements and station facilities within the Eastern Section of the Program Corridor. Construction activities in the Eastern Section could result in soil erosion and stormwater discharges of suspended solids, increased turbidity, and potential mobilization of other pollutants from Program-related construction sites. The Build Alternative Options would have effects on hydrology and water quality during construction activities and could have cumulative effects with other planned transportation and development projects in the Eastern Section of the Program Corridor. However, because appropriate design features and construction BMPs (as required by the CWA and other regulations) would be incorporated, effects on hydrology and water quality are expected to be moderate. Implementation of these regulatory requirements would reduce water quality and erosion effects associated with construction activities. Although there are no assurances that other cumulative projects would incorporate the same degree or methods of treatment as the Program, each related project would be required to comply with its NPDES General Construction Permit and local stormwater ordinances, at a minimum. Water quality effects during construction would be minimized and are not anticipated to result in cumulative effects.

Operation of the Program within the Eastern Section would result in an increase in pollutants (e.g., fuel and oils) from trains and station parking lots and an increase in impervious surfaces and runoff that could result in substantial hydrology and water quality effects. Depending on where the rail infrastructure improvements and station facilities are located, cumulative effects on hydrology and water quality could be potentially greater if future transportation projects and new development is located in the same area, or adjacent, to the location. However, regional programs and the MS4 Permit Program have been designed in anticipation of future urbanization with the regional control

measures taking into account cumulative hydrology and water quality effects of proposed development. In addition, the Build Alternative Options and cumulative projects would be required to comply with the regulations. Because appropriate design features and operational BMPs would be expected to be incorporated, cumulative hydrology and water quality effects are anticipated to be moderate.

Cumulative Geology, Soils, Seismicity, and Paleontological Resources Effects

WESTERN SECTION

No new rail infrastructure or station facilities would be constructed in the Western Section under any of the Build Alternative Options. Therefore, construction-related effects on geologic resources are negligible, and cumulative effects on these resources are not anticipated within the Western Section. Operation of any of the Build Alternative Options within the Western Section of the Program Corridor would remain within the existing rail ROW and station facilities. As a result, operational activities would have a negligible effect on geologic resources, and it is unlikely that any of the Build Alternative Options would contribute to cumulative geologic resource effects within the Western Section.

EASTERN SECTION

Implementation of the Program under any of the Build Alternative Options would require the construction of rail infrastructure improvements and station facilities within the Eastern Section of the Program Corridor. Construction activities would require clearing, grading, and excavating of soils, which could include cut and fill activities that cause slope instability and landslides, as well as the loss of availability of known mineral and paleontological resources. Project-specific effects associated with geologic hazards would not be considered cumulative because the effects are not incrementally affected by additional projects (for example, the effect on a single project by an earthquake or the shrink/swell of clay soils would not be affected by other projects in the area). However, effects on geologic resources could be incrementally affected by multiple projects. Cumulative effects on geologic resources would be expected if construction of multiple projects resulted in slope instability in a given area or if use of mineral resources for construction (such as sand and gravel) caused a substantial overall depletion of these resources. While there are areas within the Eastern Section that have steep-slope topography, the majority of the Eastern Section of the Program Corridor has generally flat topography. Potential effects due to slope instability (such as landslides or earthquake-induced liquefaction) would be easily addressed during Tier 2/Project-level analysis and final design. Sand and gravel would be needed for construction of any of the Build Alternatives, but because reserves are plentiful throughout the region, none of the Build Alternative

Options, in combination with other planned projects in the area, would be expected to contribute to limiting availability to these resources.

Operation of any of the Build Alternative Options within the Eastern Section of the Program Corridor would require ongoing maintenance activities associated with the rail infrastructure and station facilities with maintenance activities not requiring ground-disturbing activities. As a result, operational activities would have a negligible effect on geologic resources, and it is unlikely that any of the Build Alternative Options would contribute to cumulative geologic resource effects within the Eastern Section.

Cumulative Hazards and Hazardous Materials Effects

WESTERN SECTION

No new rail infrastructure or station facilities would be constructed in the Western Section under any of the Build Alternative Options. Therefore, construction-related effects on hazards and hazardous materials are negligible, and cumulative effects are not anticipated within the Western Section. Operation of any of the Build Alternative Options within the Western Section of the Program Corridor would remain within the existing rail ROW and station facilities. As a result, operational activities would have a negligible effect on hazards and hazardous materials, and it is unlikely that any of the Build Alternative Options would contribute to cumulative hazards and hazardous material effects within the Western Section.

EASTERN SECTION

Implementation of the Program under any of the Build Alternative Options would require the construction and operation of rail infrastructure improvements and station facilities within the Eastern Section of the Program Corridor. Construction activities could include disturbances on properties with known potential for hazardous materials exposure. Any hazardous wastes or materials encountered through ground-disturbing activities would be handled and disposed of in accordance with federal, state, and local regulatory requirements. All planned projects would also be subject to the same local, regional, state, and federal regulations. During operation, the Build Alternative Options and cumulative projects would all involve the storage, use, disposal, and transport of hazardous materials to varying degrees during construction and operation. Effects from the Build Alternative Options would be negligible because the storage, use, disposal, and transport of hazardous materials are extensively regulated by federal, state, and local laws, regulations, and policies. Based on these considerations, the Build Alternative Options combined with planned projects are not anticipated to not result in cumulative effects on hazards and hazardous materials.

Cumulative Public Utilities and Energy Effects

WESTERN SECTION

No new rail infrastructure or station facilities would be constructed in the Western Section under any of the Build Alternative Options. Therefore, construction-related effects associated with public utilities and energy consumption are negligible, and cumulative effects on public utilities and energy are not anticipated within the Western Section. Operation of any of the Build Alternative Options within the Western Section of the Program Corridor would remain within the existing rail ROW, and station facilities and would not result in changes in land use or the provision of public utilities within the Western Section. As a result, operational activities would have a negligible effect on public utilities, and it is unlikely that any of the Build Alternative Options would contribute to cumulative public utility effects within the Western Section.

Operation of the Program within the Western Section is expected to increase transit ridership under the Build Alternative Options. Therefore, operation of the Build Alternative Options would result in a long-term net energy benefit because of changes in ridership from high-energy consumption modes of travel to the lower-energy mode of passenger rail. The Build Alternative Options, combined with other future transit projects within the Western Section, would have a beneficial cumulative effect on energy consumption and would contribute toward offsetting increased energy consumption that would result from future road transportation projects and new development to accommodate population growth.

EASTERN SECTION

Implementation of the Program under any of the Build Alternative Options would require the construction of rail infrastructure improvements and station facilities within the Eastern Section of the Program Corridor. Construction activities would generate wastewater and could potentially conflict with existing utilities (e.g., electrical transmission lines and natural gas pipelines), particularly in urban areas where there is a high density of utility lines. The Build Alternative Options combined with planned projects would contribute to potential cumulative effects on utilities. However, the effects of the Build Alternative Options on utilities would be avoided, minimized, and mitigated at the Tier 2/Project-level analysis once rail infrastructure improvements and station facilities locations are identified, which would reduce the potential for cumulative effects.

Construction activities would also require the consumption of energy in the form of gasoline and diesel fuel. Under cumulative conditions within the Eastern Section, future transportation projects and new development to accommodate population growth would also result in consumption of energy during construction. The Build Alternative Options combined with these future projects would cumulatively contribute to the consumption of energy during construction. However, operation of the

Build Alternative Options would result in a long-term net energy benefit because of the changes in ridership from high-energy consumption modes of travel to the lower-energy mode of passenger rail. The Build Alternative Options, combined with other future transit projects in the Eastern Section, would have a beneficial cumulative effect on energy consumption and would contribute toward offsetting increased energy consumption that would result from future road transportation projects and new development to accommodate population growth.

Cumulative Cultural Resource Effects

WESTERN SECTION

No new rail infrastructure or station facilities would be constructed in the Western Section under any of the Build Alternative Options. Therefore, construction-related effects associated with archaeological, historical, or TCRs are anticipated to be negligible, and cumulative effects on cultural resources are not anticipated within the Western Section. Operation of any of the Build Alternative Options within the Western Section of the Program Corridor would remain within the existing rail ROW and station facilities and would not result in changes that could affect cultural resources. As a result, operational activities would have a negligible effect on archaeological, historical, or TCRs, and it is unlikely that any of the Build Alternative Options would contribute to cumulative cultural resource effects within the Western Section.

EASTERN SECTION

Implementation of the Program under any of the Build Alternative Options would require the construction of rail infrastructure improvements and station facilities within the Eastern Section of the Program Corridor. Construction activities would involve ground-disturbing activities that could have the potential to affect archeological, historic, or tribal resources. Disturbance of such resources under the Build Alternative Options, in combination with other future planned projects, would have a cumulatively substantial effect and contribute to the loss of cultural resources within the Eastern Section of the Program Corridor. Compliance with Section 106 of NHPA would ensure cultural resources are treated properly, which may include avoidance, data collection, or other mitigation strategies. Site-specific effects would be identified and evaluated in the Tier 2/Project-level analysis, which would reduce the potential for cumulative effects.

Similar to the Western Section, operational activities under any of the Build Alternative Options are not be expected to result in effects on cultural, historic, and tribal resources. Therefore, it is unlikely that any of the Build Alternative Options would contribute to cumulative cultural resource effects within the Eastern Section.

Cumulative Parklands and Community Service Effects

WESTERN SECTION

No new rail infrastructure or station facilities would be constructed in the Western Section under any of the Build Alternative Options. Therefore, construction-related effects associated with parklands and community services are negligible, and cumulative effects on parklands and community services are not anticipated within the Western Section. Operation of any of the Build Alternative Options within the Western Section of the Program Corridor would remain within the existing rail ROW, and station facilities and would not result in changes in parklands or the provision of community services. As a result, operational activities would have a negligible effect on parklands and community services, and it is unlikely that any of the Build Alternative Options would contribute to cumulative parkland and community service effects within the Western Section.

EASTERN SECTION

Implementation of the Program under any of the Build Alternative Options would require the construction and operation of rail infrastructure improvements and station facilities within the Eastern Section of the Program Corridor. Construction activities could result in temporary disruption of access to existing community facilities and parks and could result in detours, which could affect travel patterns for fire and law enforcement. Under cumulative conditions within the Eastern Section, future transportation projects and new development to accommodate population growth may also result in temporary disruptions of access to existing parks and require detours, which could affect travel patterns for fire and law enforcement if located in the same construction area. The Build Alternative Options, combined with these future projects, could result in cumulative effects on parks and community facilities. However, these effects would be identified and evaluated during the Tier 2/Project-level analysis, once rail infrastructure improvements and station locations are identified.

The communities within the Eastern Section are expected to incrementally add park resources and community services according to their development plans, which is appropriate for the projected rate of growth. Therefore, park resources and community services within the Eastern Section are likely to increase proportionately to population-driven development, which would result in a net increase in park resources and community services. With avoidance of existing park resources, and an increase in park resources proportional to development, there is a low likelihood for the Build Alternative Options to contribute to a cumulative effect of park resources during operation.

Cumulative Safety and Security Effects

WESTERN SECTION

No new rail infrastructure or station facilities would be constructed in the Western Section under any of the Build Alternative Options. Therefore, safety and security construction-related effects are negligible since there would be no construction that would occur. Operation of any of the Build Alternative Options within the Western Section of the Program Corridor would result in negligible safety and security effects as operational activities would remain the same as existing conditions. As a result, operational activities would have a negligible effect on safety and security, and it is unlikely that any of the Build Alternative Options would contribute to cumulative safety and security effects within the Western Section.

EASTERN SECTION

Implementation of the Program under any of the Build Alternative Options would require the construction and operation of rail infrastructure improvements and station facilities within the Eastern Section of the Program Corridor. Where future planned projects and development are adjacent to the Build Alternative Options, there is the potential for cumulative safety and security effects during construction if the timing of the projects overlap. Mitigation identified in the Tier 2/Project-level analysis would reduce cumulative effects.

Operation of the Build Alternative Options, in combination with cumulative projects, could result in an increased potential for rail incidents, including collisions at-grade roadway-rail crossings, derailed or errant vehicle in the ROW obstructing the tracks, or derailments. However, these potential effects would be mitigated by complying with FRA's *Collision Hazard Analysis Guide: Commuter and Intercity Passenger Service* and requiring preparation of safety and security management plans. Site-specific cumulative effects would be identified and evaluated at the Tier 2/Project-level analysis.

The operation of any of the Build Alternative Options would include passenger trains, stations, and other maintenance facilities. Combined with other planned development, the Build Alternative Options may contribute to an increased demand for emergency services. However, transportation and new or expanded development projects would be designed and constructed to be consistent with local land use plans and would comply with agencies' approval conditions, including fair-share development fees to pay for additional emergency services required to maintain service standards. With the payment of development fees, the cumulative effect on emergency services from operation of the Build Alternative Options, in combination with planned development projects, would not be cumulatively considerable.

Cumulative Socioeconomics and Community Effects

WESTERN SECTION

No new rail infrastructure or station facilities would be constructed in the Western Section under any of the Build Alternative Options. Therefore, construction-related effects associated with socioeconomics and communities are negligible since there would be no land acquisition, displacement, and relocations needed within the Western Section.

Operation of any of the Build Alternative Options within the Western Section of the Program Corridor would remain within the existing rail ROW and station facilities and would not result in changes in land use or community cohesion. The additional passenger rail services that would occur under any of the Build Alternative Options would result in several benefits: the creation of direct, indirect, and induced jobs; permanent increases in sales tax revenues within the counties and cities where the Build Alternative Options operate; and improved regional mobility and connectivity. Several projects listed in Table 3.17-1 would also result in creation of jobs, sales tax revenues, and improved regional mobility and connectivity, resulting in a beneficial cumulative effect.

EASTERN SECTION

Implementation of the Program under any of the Build Alternative Options would require the construction and operation of rail infrastructure improvements and station facilities within the Eastern Section of the Program Corridor. Socioeconomic and community effects are expected to be both positive and negative. In terms of negative socioeconomic and community effects, land acquisition for the Build Alternative Options could result in property tax revenue losses for local jurisdictions if residential or business properties are removed from the property tax assessment roll. Community effects could include disruptions to local communities and may require displacements or relocations of residences and businesses. If cumulative projects in the area also require land acquisition and displace and relocate sales and use tax-generating businesses outside of their current tax district, then the Build Alternative Options could contribute to cumulative effects on socioeconomics and communities. Without the specific station locations and unknown cumulative projects in the vicinity of the station locations, the severity of this impact is unknown. Site-specific effects related to potential land acquisitions, displacements or relocations, and property or sales and use tax losses would be identified and evaluated during the Tier 2/Project-level analysis.

The additional passenger rail services that would occur under any of the Build Alternative Options within the Western and Eastern Section of the Program Corridor would result in several socioeconomic and community benefits: the creation of direct, indirect, and induced jobs, permanent increases in sales tax revenues within the counties and cities where the Build Alternative Options would operate, and improved regional mobility and connectivity.

Within the Eastern Section of the Program Corridor, new station facilities could encourage redevelopment in the surrounding area and the potential for transit-oriented development. These additional developments could provide additional employment opportunities and new housing opportunities to address the projected employment and population growth within the Eastern Section of the Program Corridor. The potential for development around each station facility would depend on the type of station planned, which would be determined during the Tier 2/Project-level analysis. Any new development in the station areas would also result in the potential for additional property tax and sales tax revenues, which would benefit the counties and cities where the station facilities would be located.

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4 Environmental Justice

4.1 Introduction

U.S. EPA defines EJ as the fair treatment and meaningful involvement of all people regardless of age, sex, disability, race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies (U.S. EPA 2020). This chapter provides an evaluation of the No Build Alternative and Build Alternative Options in relation to EJ populations within the Tier 1/Program EIS/EIR Study Area. Further, this chapter establishes the framework for conducting public outreach within the EJ populations potentially affected by implementation of the Build Alternative Options.

4.2 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 EJ communities within the Tier 1/Program EIS/EIR Study Area and evaluated the potential effects on those communities as a result of implementing the Build Alternative Options.

Federal

Executive Order 12898

EO 12898, Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations, was issued by President Clinton on February 4, 1994. It requires each federal agency “to make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations” (59 FR 7629, February 16, 1994). In a memorandum to agency department heads that accompanied the EO, President Clinton specifically recognized the importance of NEPA procedures for identifying and addressing EJ concerns. The memorandum states, “each federal agency shall analyze the environmental effects, including human health, economic, and social effects, of federal actions including effects on minority and low-income communities, when such analysis is required by NEPA.” The memorandum also calls out the importance of NEPA's public participation process, by directing each federal agency to “provide opportunities for community input in the NEPA process” and “identify potential effects and

mitigation measures in consultation with affected communities, and improve the accessibility of meetings, crucial documents, and notices” (The White House 1994).

Title VI of the Civil Rights Act of 1964

EJ is partially based on Title VI of the Civil Rights Act of 1964, one of the laws integrated into the procedures of NEPA. Title VI of the Civil Rights Act of 1964 prohibits discrimination on the grounds of race, color, or national origin, and protects classes of people from being denied the benefits of, or being excluded from participation in, any program or activity receiving federal assistance (Title VI, 42 USC Section 2000[d]). NEPA requires federal agencies to serve as trustees of the environment for succeeding generations and ensure that all Americans have “safe, healthful, productive, and aesthetically and culturally pleasing surroundings” (42 USC Section 4331(b)(2)).

United States Department of Transportation Order 5610.2(a)

On May 2, 2012, USDOT issued Order 5610.2(a), Order to Address Environmental Justice in Minority Populations and Low-Income Populations, which updates USDOT Order 5610.2 and describes how USDOT operating administrations comply with EO 12898. The update reaffirms USDOT’s commitment to EJ’s following guiding principles:

- To avoid, minimize, and mitigate disproportionately high and adverse effects
- To ensure the full and fair participation by all potentially affected communities
- To prevent the denial of, reduction in, or significant delay in receipt of benefits by minority and low-income populations

The order also directs federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of agency actions to promote the principles of EJ in all USDOT programs, policies, and activities. It requires that EJ principles be fully considered throughout planning and decision-making processes using the “principles of NEPA; Title VI; the Uniform Act, as amended; the Intermodal Surface Transportation Efficiency Act of 1991; and other USDOT statutes, regulations, and guidance that address or affect infrastructure planning and decision making; social, economic, or environmental matters; public health; and public involvement.”

USDOT Order 5610.2(a) defines a disproportionately high and adverse effect as one that would meet either characteristic below:

- The effect would be predominantly borne by a minority and/or low-income population.
- The effect suffered by the minority and/or low-income population would be appreciably more severe than the effect suffered by the non-minority and/or non-low-income population.

Meaningful involvement means that (1) potentially affected community residents have an appropriate opportunity to participate in decisions about a proposed activity that would affect their environment and/or health; (2) the public's contribution can influence the regulatory agency's decision; (3) the concerns of all participants involved will be considered in the decision making process; and (4) the decision makers seek out and facilitate the involvement of those potentially affected.

State

CEQA

An EJ analysis is required by federal law but is not explicitly required by the state of California. CEQA focuses on whether a project would have a significant impact on the physical environment. Although specific provisions of CEQA require consideration of how the environmental impacts of a project would affect certain communities (e.g., through consideration of the physical division of an established community and the assessment of cumulative impacts of a project), CEQA does not directly address EJ.

4.3 Methods for Evaluating Environmental Effects

This analysis identifies EJ populations within the Tier 1/Program EIS/EIR Study Area that coincide with potential environmental effects identified as a result of implementation of the Tier 1/Program EIS/EIR. Because this Tier 1/Program EIS/EIR represents a high-level of analysis for all resources, identifying potential disproportionate effects on EJ populations was not possible. However, this analysis presents identified benefits to EJ populations and those EJ areas that are most susceptible to having multiple resource areas affected because of implementation of the Build Alternative Options.

The methodology for conducting the review and evaluation of minority and low-income populations is in accordance with federal regulations and guidelines, including Title VI, EO 12898, USDOT Order 5610.2(a), and CEQ's EJ guidance titled *Environmental Justice: Guidance under the National Environmental Policy Act* (CEQ 1997b).

Population and demographic data; including race, ethnicity, and income; are reported through the ACS, an ongoing U.S Census Bureau survey that samples a percentage of the population every year. GIS mapping was used to identify where EJ populations are located relative to the Build Alternative Options per threshold criteria established for identifying a minority or low-income population. For the purpose of this Tier 1/Program service-level evaluation, a minority individual is defined as any person who identified their race as American Indian or Alaskan Native, Asian, Native Hawaiian or Other Pacific Islander, or Black—or their ethnicity as Hispanic or Latino (independent of race)—in response to the ACS.

The number of individuals identified as minority individuals was then compared with the total population to calculate the minority percentage for each census block group in the Tier 1/Program EIS/EIR Study Area. The percentage of the population that is low income was calculated based on the percentage of the population in each census block group that reported income below the poverty level in response to the ACS (U.S. Census Bureau 2016b).

Each census block group was then reviewed to determine whether it contained an EJ population per the following threshold criteria established for identifying minority and low-income populations:

1. Minority or low-income percentage of the population in the census block group is greater than 50 percent
2. Minority or low-income percentage of the population in the census block group is at least 10 percentage points higher than the minority or low-income percentage of the general population in the corresponding county

Because EJ effects are location-specific, EJ effects cannot be fully described until specific Project design details (e.g., construction footprint, road crossings, station locations) and resulting site-specific effects (e.g., related to land acquisition and displacement, noise and vibration, air quality) are known. Consequently, potential effects on EJ populations can only be described qualitatively consistent with a Tier 1/Program EIS/EIR.

Tier 1/Program EIS/EIR Study Area

The Tier 1/Program EIS/EIR Study Area for the EJ evaluation includes all census block groups that occur within the Program Corridor.

Data Sources

Demographic data from 2012–2016 ACS 5-year estimates were obtained at the county and census block group level (U.S. Census Bureau 2016b).

Related Resources

This evaluation incorporates data and evaluation from related resources to contribute to the assessment of EJ. These related resources are identified in Table 4-1.

Table 4-1. Related Resource Inputs for Environmental Justice Assessment

Resource	Input for EJ Assessment
Transportation (Section 3.3)	Existing and proposed transportation infrastructure and service characteristics identified potential effects on EJ populations.
Visual Quality and Aesthetics (Section 3.4)	Areas where built elements of the Build Alternative Options would introduce long-term visual changes were identified.
Air Quality and Greenhouse Gases (Section 3.5)	Areas where air quality emissions may change or increase as a result of construction or operation of the Build Alternative Options were identified.
Noise and Vibration (Section 3.6)	Areas where noise and vibration thresholds may be exceeded by construction or operation of the Build Alternative Options were identified.
Hazards and Hazardous Materials (Section 3.11)	Hazardous waste and contaminated material sites that have the potential to be affected by construction or operation of the Build Alternative Options were identified.
Socioeconomics and Communities Affected (Section 3.16)	Demographics data and community profiles were assessed.

Notes:

EJ=environmental justice

4.4 Affected Environment

The percentage of the population that is minority or that has income levels below the poverty threshold are summarized by county in Table 4-2. The minority percentage of the population is highest in Los Angeles County (70.8 percent), followed by San Bernardino County (67.0 percent), Riverside County (60.1 percent), and Orange County (55.3 percent). The percentage of the population with income below poverty ranges from 12.5 percent in Orange County to 19.1 percent in San Bernardino County.

Table 4-2. Minority Population and Population below Poverty by County

County	Total Population	Percent Minority	Percent Below Poverty
Los Angeles	10,057,155	70.8	17.8
Orange	3,132,211	55.3	12.5
Riverside	2,323,892	60.1	16.5
San Bernardino	2,106,754	67.0	19.1

Source: U.S. Census Bureau 2016b

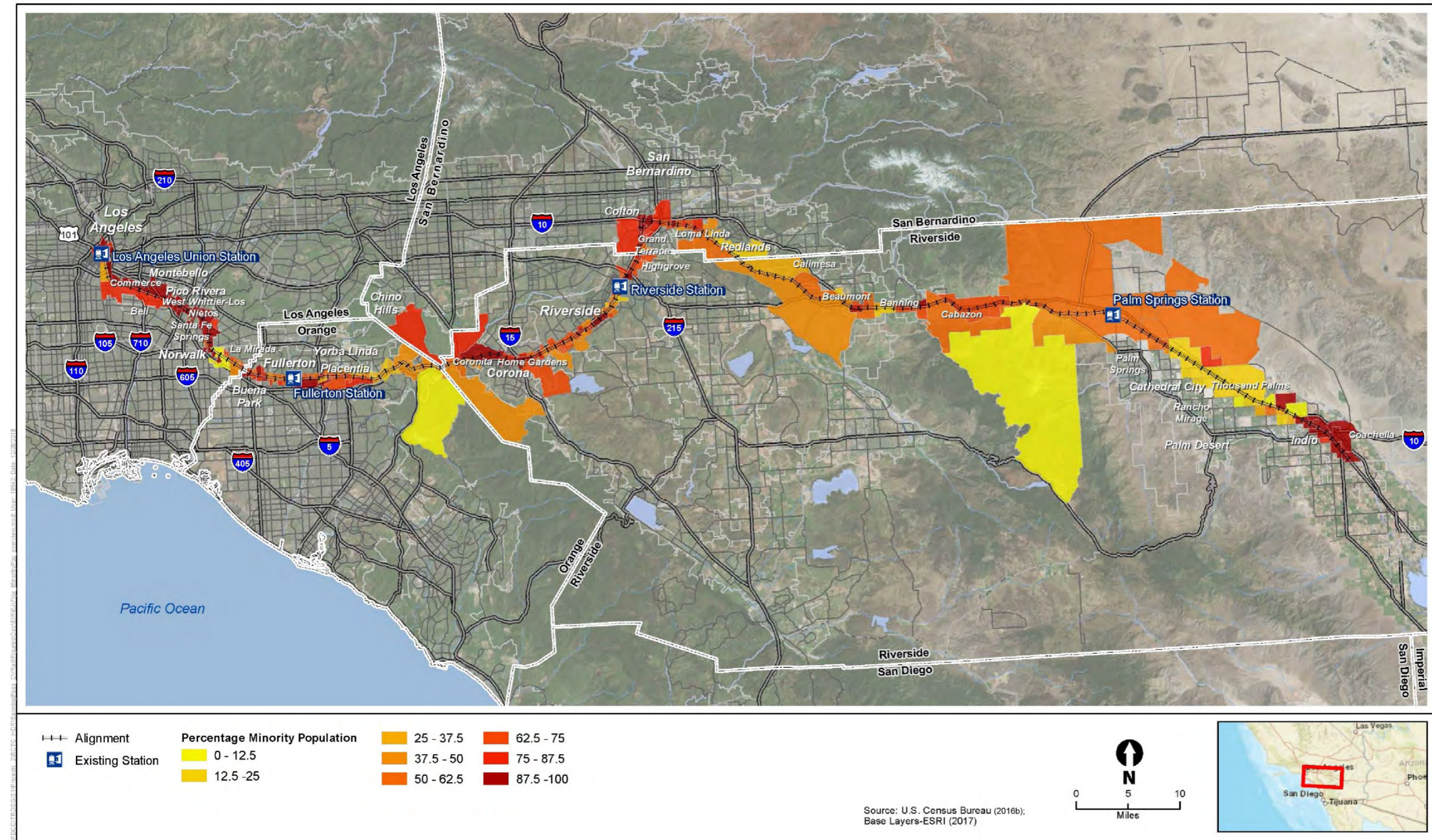
Build Alternative Option 1 (Coachella Terminus)

The minority population percentages for the census block groups included in the Tier 1/Program EIS/EIR Study Area are shown on Figure 4-1. As depicted on Figure 4-1, the minority population percentage is generally higher in the Western Section compared with the Eastern Section and exceeds 50 percent at many locations throughout the Tier 1/Program EIS/EIR Study Area. The minority population percentage is highest (exceeding 75 percent) in census block groups within the Western Section of the Program Corridor between Los Angeles and Fullerton and in the vicinity of the Cities of Corona and Colton. Within the Eastern Section of the Program Corridor, the minority population percentage is highest in census block groups in the vicinity of the Cities of Indio and Coachella.

The locations of EJ populations, as determined by the threshold criteria of greater than 50 percent minority, are shown on Figure 4-2. Because all four counties crossed by the Build Alternative Options have minority populations greater than 50 percent, application of the second threshold criteria (minority population of the census block group greater than 10 percent higher than the general population in the corresponding county) did not yield inclusion of additional census block groups for designation of EJ populations.

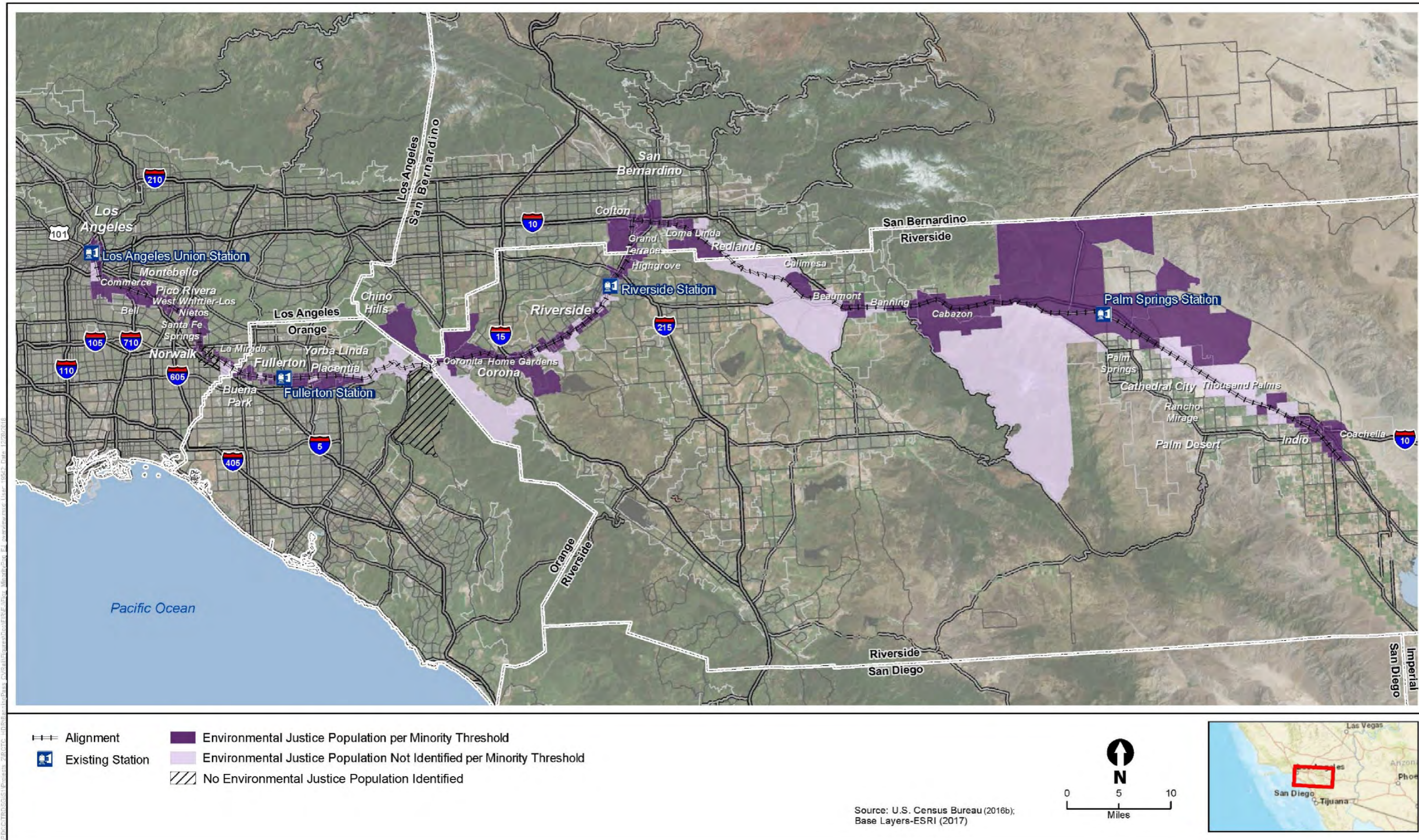
The percentage of the population in census block groups with incomes below poverty level (i.e., low income) is shown on Figure 4-3. Figure 4-4 shows the location of EJ populations as determined by the threshold criteria for identifying low-income populations (i.e., greater than 50 percent of the population has income levels below poverty or the percentage of the population with incomes below poverty exceeds the percentage in the corresponding county by greater than 10 percent). Based on this criteria, low-income populations are located throughout the Tier 1/Program EIS/EIR Study Area but are most notable in the Western Section between Los Angeles and Bell and between Corona and Loma Linda; and in Eastern Section in the vicinity of the Cities of Calimesa, Banning, Indio, and Coachella.

Figure 4-1. Percentage of Minority Population within Tier 1/Program EIS/EIR Study Area Census Block Groups



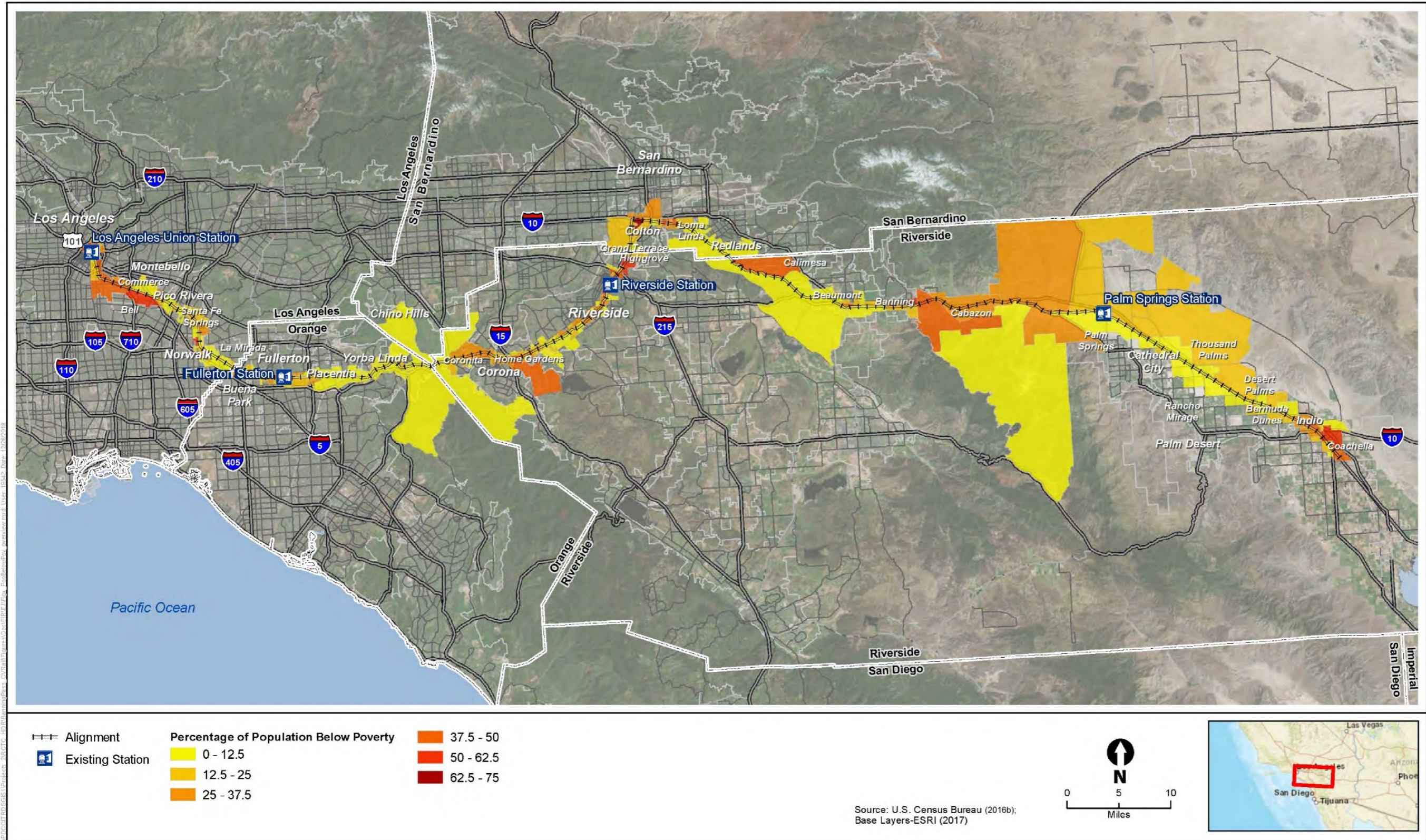
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Figure 4-2. Environmental Justice Population within the Tier 1/Program EIS/EIR Study Area per Minority Threshold



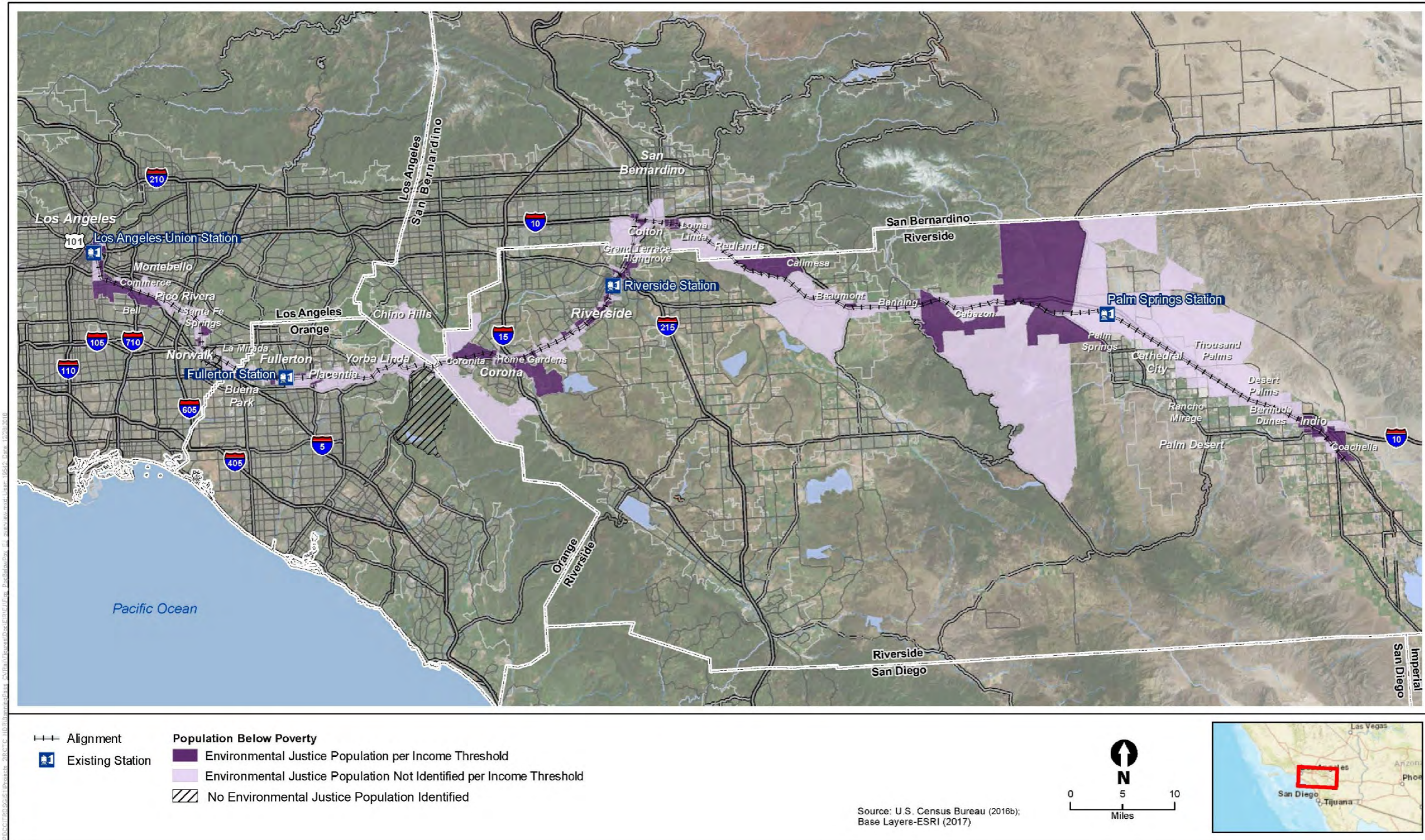
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Figure 4-3. Percentage of Low-Income Population within the Tier 1/Program EIS/EIR Study Area Census Block Groups



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Figure 4-4. Environmental Justice Populations within the Tier 1/Program EIS/EIR Study Area per Income Threshold



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Build Alternative Option 2 (Indio Terminus)

Existing EJ population data and information within Build Alternative Option 2 is the same as Build Alternative Option 1.

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

Existing EJ population data and information within Build Alternative Option 3 is the same as Build Alternative Option 1.

4.5 Environmental Consequences

Overview

It is anticipated that implementation of the Program would have an overall positive effect on the communities within the Program Corridor in terms of generating construction jobs, increasing the potential for new employment and housing opportunities around station areas, reducing congestion on highways, and improving regional air quality and connectivity.

Effects associated with implementation of the Program can be broadly classified into construction and operational effects. Long-term or permanent effects and short-term or temporary effects on EJ populations would be anticipated as a result of constructing any of the Build Alternative Options. Generally, impacts on EJ populations would occur during construction when land acquisitions, traffic detours, construction noise and vibration, and air quality impacts would adversely affect people living and working in the Tier 1/Program EIS/EIR Study Area.

Effects would also result from operation of any of the Build Alternative Options. Permanent changes to the roadway network, particularly in the vicinity of proposed stations, could have long-term effects on circulation and access near stations, while passenger rail operation could also cause localized increases in pollutant concentrations near stations and commuter parking lots, as traffic would be concentrated in those areas. Operation of the Build Alternative Options, including the proposed stations, has the potential to result in displacement and relocation of residences, businesses, and/or community facilities; disruptions to community cohesion; and community effects related to changes in the overall character of a community due to secondary effects related to, for example, traffic, noise and vibration, ambient air quality, or aesthetic changes.

At the conceptual level, the Build Alternative Options are unlikely to result in disproportionately high and adverse effects on minority and low-income communities. As part of Tier 2/Project-level analysis, a more detailed and refined study will be completed to document the presence of

low-income and minority communities and then to evaluate if there would be disproportionately high and adverse site-specific effects on those communities.

Based on the analysis in this Tier 1/Program EIS/EIR, traffic, visual quality, air quality, noise and vibration, and socioeconomic effects were considered at the conceptual level to assess potential impacts on EJ communities. Impacts on these resources have the potential to disproportionately effect EJ communities depending on site-specific considerations and would be analyzed further in a Tier 2/Project-level analysis.

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 and would not meet the Purpose and Need of the Program. Counties and cities in the Program Corridor would continue to grow, which would increase regional transportation demand; therefore, the No Build Alternative assumes completion of those reasonably foreseeable transportation, development, and infrastructure projects that are already in progress; are programmed; or are included in the fiscally constrained RTP.

However, an increase in traffic and VMT is expected under the No Build Alternative because more cars would be on the roadways compared with what would occur with implementation of the Program. With an increase in rail service and increases in cars on the roadways, all populations, including minority and low-income populations, within the Program Corridor would not experience the regional access, mobility, and economic benefits provided through access to enhanced passenger rail services.

Under the No Build Alternative, the enhanced passenger rail system would not be constructed or operated. Therefore, effects on and benefits experienced by EJ populations from construction and operation associated with implementation of the Program would not occur.

Build Alternative Options 1, 2, and 3

Environmental Justice Population Effects

CONSTRUCTION

Western Section. No construction activities would be required to implement the Build Alternative Options within the Western Section of the Program Corridor because the existing railroad ROW and station areas from LAUS to Colton would be used to increase passenger rail service by two daily round-trip intercity passenger trains. Impacts on EJ communities are not anticipated from construction of the Build Alternative Options in the Western Section.

Eastern Section. Construction activities required for rail infrastructure improvements (e.g., sidings, additional main line track, wayside signals, drainage, and grade-separation structures) and station facilities would result in short-term increases traffic, air quality emissions, and noise levels in and around the construction site. Traffic, air quality emissions, and noise would be generated from the use of equipment to conduct vegetation clearing, grading, and excavation; transport of materials and waste; and construction vehicles entering and exiting the construction site. The traffic, air quality emissions, and noise that would be generated would vary depending on the length of the construction period, specific construction activity (e.g., grading, paving, and pile driving), types of equipment, and number of personnel, as follows:

- **Traffic.** Potential construction effects on transportation include lane or road closures and traffic detours that may temporarily disrupt vehicular, pedestrian, bicycle, and transit circulation patterns near construction sites and cause vehicle delay during the construction period. Construction traffic-related delays would also result in increased response times for law enforcement, fire, and emergency services.
- **Visual quality.** While the presence of construction materials, equipment, on-site workers, and vehicle detours during construction would result in visual changes to communities adjacent to the railroad ROW, these activities would not permanently obstruct views of the landscape, change the visual character, or result in degradation of visual quality within the Eastern Section of the Program Corridor.
- **Air quality.** Emissions from construction equipment have the potential to cause elevated concentrations of air within or adjacent to the construction site. Design specifics and locations of the rail infrastructure improvements and station facilities are not known at this time; the air quality emissions that would be generated and potential sensitive receptors that would be affected during specific construction activities cannot be quantified at the Tier 1/Program-level.
- **Noise and vibration.** Noise generated from construction activities under any of the Build Alternative Options may exceed FTA and local daytime and nighttime noise standards at nearby noise sensitive receptors, depending on the locations of specific rail infrastructure improvements and station facilities relative to the noise sensitive receptors. Design specifics and locations of the rail infrastructure improvements and station facilities are not known at this time; the noise levels that would be generated and potential sensitive receptors that would be affected during specific construction activities cannot be quantified at the Tier 1/Program-level.

- **Socioeconomics.** Socioeconomic and community effects are expected to be both positive and negative. In terms of negative socioeconomic and community effects, land acquisition for the Build Alternative Options could result in property tax revenue losses for local jurisdictions if residential or business properties are removed from the property tax assessment roll. Community effects would include disruptions to local communities and may require displacements or relocations of residences and businesses. Construction of the rail infrastructure improvements and station facilities that would occur under any of the Build Alternative Options would result in several socioeconomic and community benefits, including the creation of direct, indirect, and induced jobs.

Based on a conceptual-level analysis, disproportionately high and adverse effects on EJ communities as a result of construction of the Build Alternative Options in the Eastern Section are unlikely.

When compared with the No Build Alternative, visual quality effects on EJ populations would be negligible within the Eastern Section of the Program Corridor under Build Alternative Option 1. 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 Option 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 negligible when compared with the No Build Alternative.

When compared with the No Build Alternative, traffic effects on EJ populations would be moderate within the Eastern Section of the Program Corridor under Build Alternative Option 1. 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 moderate when compared with the No Build Alternative. When compared with Build Alternative Option 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 moderate when compared with the No Build Alternative.

When compared with the No Build Alternative, air quality, noise, and socioeconomic effects on EJ populations would be substantial within the Eastern Section of the Program Corridor under Build Alternative Option 1. 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 substantial when compared with

the No Build Alternative. When compared with Build Alternative Option 1 or 2, Build Alternative Option 3 may have reduced effects due to a slightly 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 substantial when compared with the No Build Alternative.

Although construction of the Build Alternative Options in the Eastern Section would result in potential impacts on EJ communities, these impacts are not anticipated to be predominantly borne by a minority or low-income population, as all populations adjacent to construction areas would be exposed to the same level of effects. In addition, potential effects from the Build Alternative Options would be short term, occurring at a location only while construction work is in progress. Construction activities would comply with applicable local, state, and federal regulations, and BMPs would be implemented to minimize emissions and construction effects on all sensitive receptors, which include EJ populations within the area. Socioeconomic benefits would also be generated for all populations, including EJ populations in the form of expanded job and economic opportunities during construction activities.

OPERATION

Western Section. During operation, 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. Operational activities are anticipated to be limited to maintenance of culverts, bridges, embankments, and station areas. Operation of the Tier 1/Program within the Western Section would result in the following potential effects:

- **Traffic.** Implementation of the Program would not result in noticeable effects associated with rail operation traffic. During operation of the Program, local streets around each existing rail station would likely be affected due to additional auto traffic that could be generated by patrons accessing and departing from each station, which would affect access in and around the station. However, implementation of the Program is expected to reduce regional auto trips and VMT due to a shift from auto travel to rail travel.
- **Visual quality.** Operation of the Build Alternative Options in the Western Section would not result in effects on existing visual resources, as the additional train trips would travel within an existing railroad ROW.

- **Air quality.** The Program would be beneficial in reducing localized effects in some cases and have adverse effects in other cases. Operation of any of the Build Alternative Options would generally result in a long-term net benefit to air quality by reducing emissions of criteria pollutants, air toxics, and GHG through a reduction in VMT and vehicle emissions. However, localized air quality emissions from Program operation would have the potential to expose nearby population to increased air quality pollutants.
- **Noise and vibration.** When compared with existing ambient noise levels along the Western Section of the Program Corridor, operation of the enhanced passenger rail system under the Build Alternative Options is not anticipated to result in changes associated with operational noise from passenger rail trains or the continuation of operational activities at existing rail stations.
- **Socioeconomics.** The additional passenger rail services that would occur under the Build Alternative Options within the Western Section of the Program Corridor would result in several socioeconomic and community benefits: the creation of direct, indirect, and induced jobs; permanent increases in sales tax revenues within the counties and cities where the Build Alternative Options would operate; and improved regional mobility and connectivity.

Based on a conceptual-level analysis, disproportionately high and adverse effects on EJ communities as a result of operation of the Build Alternative Options in the Western Section are unlikely.

When compared with the No Build Alternative, visual quality, noise, and socioeconomic effects on EJ populations would be negligible within the Western Section of the Program Corridor under Build Alternative Option 1. When compared with Build Alternative Option 1, Build Alternative Options 2 and 3 would have the same magnitude of effect and be considered negligible when compared with the No Build Alternative. Socioeconomic benefits would also be generated for all populations, including EJ populations in the form of expanded job and economic opportunities and improved regional accessibility and mobility.

When compared with the No Build Alternative, traffic effects on EJ populations would be moderate within the Western Section of the Program Corridor under Build Alternative Option 1. When compared with Build Alternative Option 1, Build Alternative Options 2 and 3 would have the same magnitude of effect and be considered moderate when compared with the No Build Alternative.

When compared with the No Build Alternative, air quality effects on EJ populations would be substantial within the Western Section of the Program Corridor under Build Alternative Option 1. When compared with Build Alternative Option 1, Build Alternative Options 2 and 3 would have the

same magnitude of effect and be considered substantial when compared with the No Build Alternative.

Although operation of the Build Alternative Options would result in potential effects on EJ communities, these impacts are not anticipated to be predominantly borne by EJ populations. In addition, the Build Alternative Options would benefit EJ communities within the Program Corridor by reducing traffic and VMTs due to the anticipated shift from auto travel to rail travel.

Eastern Section. During operation, 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. Operational activities are anticipated to be limited to maintenance of culverts, bridges, embankments, and station areas. Operation of the Tier 1/Program within the Eastern Section would result in the following potential effects:

- **Traffic.** Implementation of the Program would not result in noticeable effects associated with rail operation traffic. During operation of the Program, local streets around proposed rail stations would likely be affected due to additional auto traffic that could be generated by patrons accessing and departing from each station, which would affect access in and around the station. It is possible that the addition of auto trips to the existing roadway network could result in effects on local roadways that would require mitigation. While operation of the Program within the Eastern Section would add auto trips to local street network, the Build Alternative Options are anticipated to shift auto trips to intercity rail passenger trips, thereby reducing vehicle trips and VMT on the regional highways.
- **Visual quality.** Permanent visual changes (physical elements) that could result from implementation of the Program would include the presence of new railroad track, bridges, grade crossing, train stations, parking facilities, noise walls, open cuts, cut-and-fill areas, retaining walls, removed vegetation, and night lighting. Because rail infrastructure improvements would be located along the existing railroad ROW, the rail infrastructure improvements would generally not represent a change in visual character from existing conditions. However, effects would occur if the improvements would remove structures or landscaping or introduce visual elements that are out-of-scale or otherwise visually incompatible with the existing visual character. This would most likely occur if substantial ROW widening was necessary at grade separations or stations and associated parking areas.

- **Air quality.** Operation of the Program within the Eastern Section of the Program Corridor would increase passenger train trips and associated locomotive emissions. Passenger rail operation would also cause localized increases in air quality pollutant concentrations near stations and commuter parking lots, as additional traffic would be added in those areas. However, operation of the Program is anticipated to contribute to the region's long-term attainment of air quality goals by reducing VMT, which, in turn, would reduce air quality emissions.
- **Noise and vibration.** Operation of the enhanced passenger rail system within the Eastern Section of the Program Corridor under the Build Alternative Options is not be anticipated to result in changes associated with operational noise from passenger rail trains. However, it is currently unknown if operation of the enhanced passenger rail system would require rail infrastructure improvements that would change the existing noise environment (e.g., the provision of grade separations, bridges, or sidings). In addition, operation of new rail station facilities would also result in new sources of mobile (e.g., vehicles accessing the station) and stationary noise (e.g., building heating, ventilation, and air conditioning systems and truck deliveries [if there are commercial uses included as part of the station facility]), which may result in exceedances of FTA or local standards on adjacent sensitive noise receptors. Design specifics and locations of the rail infrastructure improvements and station facilities are not known at this time; therefore, the operational noise that would be generated and potential sensitive receptors that would be affected during operational activities cannot be quantified at the Tier 1/Program-level evaluation.
- **Socioeconomics.** Socioeconomic and community effects are expected to be both negative and positive. In terms of negative socioeconomic and community effects, land acquisition for the Build Alternative Options could result in property tax revenue losses for local jurisdictions if residential or business properties are removed from the property tax assessment roll. Community effects would include disruptions to local communities and may require displacements or relocations of residences and businesses. However, the additional passenger rail services that would occur under any of the Build Alternative Options within the Eastern Section of the Program Corridor would result in several socioeconomic and community benefits: the creation of direct, indirect, and induced jobs; permanent increases in sales tax revenues within the counties and cities where the Build Alternative Options would operate; and improved regional mobility and connectivity. In addition, new station facilities could encourage redevelopment in the surrounding area and the potential for transit-oriented development. These additional developments would provide additional employment opportunities and new housing opportunities to address the projected employment and population growth within the Eastern Section of the Program Corridor.

Based on a conceptual-level analysis, disproportionately high and adverse effects on EJ communities as a result of operation of the Build Alternative Options in the Eastern Section are unlikely.

When compared with the No Build Alternative, visual quality and noise effects on EJ populations would be moderate within the Eastern Section of the Program Corridor under Build Alternative Option 1. 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 moderate when compared with the No Build Alternative. When compared with Build Alternative Option 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 moderate when compared with the No Build Alternative.

When compared with the No Build Alternative, traffic, air quality, and socioeconomic effects on EJ populations would be substantial within the Eastern Section of the Program Corridor under Build Alternative Option 1. 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 substantial when compared with the No Build Alternative. When compared with Build Alternative Option 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 substantial when compared with the No Build Alternative.

Although operation of the Build Alternative Options in the Eastern Section would result in potential impacts on EJ communities, these impacts are not anticipated to be predominantly borne by EJ populations. In addition, the Build Alternative Options would benefit EJ populations within the Program Corridor in the form of expanded job and economic opportunities and improved regional accessibility and mobility.

4.6 Outreach to Environmental Justice Communities

As summarized in Chapter 7, Public and Agency Outreach, public outreach was initiated and conducted during the Tier 1/Program EIS/EIR process and would continue in a Tier 2/Project-level analysis. Opportunities for public involvement have been made available throughout the Tier 1/Program EIS/EIR environmental process. Additional opportunities for public involvement would be available during a Tier 2/Project-level environmental review process to ensure EJ populations have

access to information on Tier 2/Project efforts and an opportunity to provide input about community-based concerns.

As part of the Tier 1/Program EIS/EIR environmental process, steps were taken by FRA, RCTC, and Caltrans to provide meaningful access to those limited English proficiency individuals expected to be most regularly encountered by providing, as necessary, translation services at public meetings and meeting notifications and materials advertised in English and Spanish. Three public scoping meetings were held at three locations (Indio, Riverside, and Los Angeles) during the NOI/NOP comment period to educate the public on the purposed and need for the Program, share the history of the Program, outline the Program benefits, highlight the Program elements, explain next steps, and gather public comments per the requirements of CEQA and NEPA. To ensure that the multilingual needs of the community were met, the Program fact sheet was available in Spanish. In addition, team staff members were available to interpret the presentation in Spanish. Program fact sheets and comment cards were provided as handouts at the public scoping meetings.

During the circulation of the Draft Tier 1/Program EIS/EIR, the Notice of Availability (NOA) will be distributed and posted on local, state, and federal websites, through various email lists, and published in multiple English and Spanish newspapers within the Program Corridor. The public will be invited to review the Draft Tier 1/Program EIS/EIR and provide feedback and comments that would be taken into consideration as part of the Final Tier 1/Program EIS/EIR process.

Additionally, a community profile discussing cohesion and community facilities, including additional focus on the communities with stations, would be developed during the Tier 2/Project-level analysis. A demographic analysis at a smaller geography with Tier 2/Project-level analysis will also need to be conducted to better understand which populations would be affected and which populations would benefit from construction and operation. The demographic analysis would also focus on EJ populations to help determine if these populations would be adversely affected by construction and operation. The EJ analysis would review all elements of the environment to determine if there would be adverse effects resulting in disproportionate effects on minority or low-income populations and review the mitigation and potential community benefits and enhancements associated with the Program.

4.7 Avoidance, Minimization, and Mitigation Strategies

Based on the conceptual-level analysis conducted for this Tier 1/Program EIS/EIR, disproportionately high and adverse effects on low-income or minority populations from the implementation of the Build Alternative Options are not anticipated in the Western Section. Therefore, no mitigation is anticipated at this time.

Implementation of the Build Alternative Options would likely result in impacts on EJ communities within the Eastern Section of the Program Corridor; however, there is insufficient detail at the Tier 1/Program EIS/EIR to conclude whether the Build Alternative Options would result in disproportionately high and adverse effects on EJ populations.

In a Tier 2/Project-level analysis, site-specific detail (e.g., location and footprint of stations) will be known. Mitigation measures to avoid impacts on EJ populations will be developed and considered to the extent feasible. Impacts that cannot be avoided will be addressed through mitigation measures developed in the Tier 2/Project-level analysis. A Tier 2/Project-level analysis may also identify additional populations, impacts, and considerations that are relevant to the consideration of effects in the Western and Eastern Sections of the Build Alternative Options.

Avoiding or minimizing the community-related effects would involve working closely with local governments and planning agencies in the refinement and development of specific projects during the Tier 2/Project-level analysis. Since EO 12898 requires federal agencies to ensure effective public participation and access to information, a more detailed and comprehensive outreach effort to potentially affected minority and/or low-income populations would need to be completed and documented at the Tier 2/Project-level. This detailed and comprehensive outreach effort to potentially affected minority or low-income populations would help identify issues of importance that may not otherwise be apparent.

Specific EJ outreach efforts that could take place as part of the Tier 2/Project-level environmental review process include provision of meeting notices to EJ interest groups, targeted noticing and translation services in communities with high levels of limited English proficiency, and targeted noticing at community facilities or through community organizations that serve low-income and minority populations. This outreach effort would identify potentially disproportionate effects on minority and low-income populations and develop ways to avoid, minimize, or mitigate the effects at a Tier 2/Project-level analysis.

The Tier 2/Project-level analysis will also consider beneficial impacts on EJ populations, building on the benefits identified in this Tier 1/Program EIS/EIR. These include the creation of direct, indirect, and induced jobs; permanent increases in sales tax revenues within the counties and cities where the Build Alternative Options would operate; and improved regional mobility and connectivity for all populations, including EJ populations.

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5 Section 4(f) and 6(f) Discussion

5.1 Introduction

This chapter discusses potential uses of Section 4(f) properties, and potential impacts on Section 6(f) properties. Section 4(f) refers to Section 4(f) of the USDOT Act of 1966, as amended (49 USC Section 303), and Section 6(f) applies to parkland and recreation facilities that have used funds authorized under Section 6(f) of the LWCF Act. This section summarizes Section 4(f) and Section 6(f) considerations at a conceptual level appropriate for this Tier 1/Program analysis.

A Tier 1/Program EIS/EIR does not have the level of detail available that is necessary to make final approvals on uses of protected Section 4(f) or 6(f) resources. No preliminary Section 4(f) determination is being made at this time. Instead, any necessary Section 4(f) evaluations and approvals would be completed during the Tier 2/Project-level analysis. Although a Section 4(f) approval is not required for this Tier 1/Program EIS/EIR, potential impacts on Section 4(f) and Section 6(f) properties have been identified and assessed to inform the decisions made at the Tier 1/Program EIS/EIR level and to identify Section 4(f) and Section 6(f) resources that would be subject to further discussion in subsequent Tier 2/Project-level analysis.

5.2 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 potential Section 4(f) and Section 6(f) resources within the Tier 1/Program EIS/EIR Study Area and analyzed the potential impacts on those resources as a result of implementing the Build Alternative Options at the Tier 1/Program EIS/EIR level.

5.2.1 Federal

Section 4(f) of the United States Department of Transportation Act of 1966

Section 4(f) of the USDOT Act of 1966 (49 USC Section 303) is intended to protect public parks, recreation areas, wildlife/waterfowl refuges, and historic sites of national, state, or local significance from being used for transportation projects. Protected properties must be of national, state, or local significance, as determined by the federal, state, or local officials having jurisdiction over the resource. A use occurs when land is permanently incorporated into a transportation facility; when

temporary occupancy (e.g., during construction) compromises the land in terms of the statute's preservation purpose; or when the proximity impacts of the project are so severe that they substantially impair the protected activities, features, or attributes that qualify the property for Section 4(f) protection.

Specifically, Section 4(f) states that the Secretary of Transportation may approve the use of publicly owned land or a publicly owned park, recreation area, wildlife and waterfowl refuge of national, state, or local significance, or land of a historic site of national, state, or local significance, only if a determination is made that:

- a. There is no feasible and prudent alternative to the use of the land from the property;
- b. The action includes all possible planning to minimize harm to the property resulting from such use; or,
- c. The use of Section 4(f) property would have a *de minimis* impact on the property.

A *de minimis* impact for historic sites means that, as determined in accordance with 36 CFR Part 800, no historic property is affected by the project or the project would have no adverse effect on the historic property in question. For parks, recreation areas, and wildlife and waterfowl refuges, a *de minimis* impact is one that would not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f).

Section 6(f) of the Land and Water Conservation Fund Act of 1965

Section 6(f) lands are defined as parkland or recreation land that was acquired or developed with funding authorized under Section 6(f) of the LWCF Act of 1965 (Public Law 88-578). The purpose of the LWCF is to assist with preserving, developing, and providing accessibility to outdoor recreation resources and strengthen the health and vitality of the citizens of the U.S. by funding, planning, acquiring, and developing facilities. Recreational facilities awarded such funds are subject to the provisions of the act. The LWCF's most important tool for supporting long-term stewardship is its conversion protection requirement. Section 6(f)(3) strongly discourages conversions of state and local park and recreation facilities to other uses.

Section 6(f)(3) of the LWCF Act states that no property acquired or developed with LWCF assistance would be converted to uses other than public outdoor recreation uses without the approval of the Secretary of the Interior, and only if the secretary finds it to be in accord with the statewide comprehensive outdoor recreation plan, and only upon such conditions as the secretary deems necessary to ensure the substitution of other recreation properties of at least equal fair market value and of reasonably equivalent usefulness and location (36 CFR Part 59).

Section 106 of the National Historic Preservation Act of 1966

Section 106 of the NHPA is an independent statute from Section 4(f); however, historic properties identified through the Section 106 consultation may be eligible for protection under Section 4(f). The Section 106 process is the method by which a historic property's significance is determined through consultation with the SHPO and other consulting parties. Section 106 also requires consideration of a project's effects on historic properties.

5.3 Methodology

This conceptual-level discussion was prepared using a desktop review of the data sources. The Tier 1/Program EIS/EIR Study Area was combined with GIS overlays to identify Section 4(f)/6(f) properties that could be affected by the Program. These potential resources 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, of this Tier 1/Program EIS/EIR.

5.3.1 Data Sources

This Section 4(f) and 6(f) resource assessment is based on information from the California Protected Areas Database (2017), a California Historical Resources Information System search, and ESRI GIS data. Given that no construction would occur within the Western Section, historic site data was not obtained for the Western Section. Site boundaries for historic architectural/built environment resources in the Eastern Section that are eligible for listing on the NRHP or local designation are not available in GIS; acreage for those site types would be calculated during the Tier 2/Project-level analysis. Listed, eligible, or potentially eligible NRHP historic properties for the Program Corridor are based on a preliminary survey of existing cultural documentation, as described in Section 3.13, Cultural Resources, of this Tier 1/Program EIS/EIR. During future Tier 2/Project-level analysis, additional properties may be identified and considered in a subsequent Section 106 consultation and Section 4(f) evaluation. Information from the following related sources, identified in Table 5-1, was also used.

Table 5-1. Related Resource Inputs for Section 4(f)/6(f) Resource Assessment

Resource	Input for Section 4(f) Resource Assessment
Land Use and Planning (Section 3.2)	Land uses for areas where a conversion may occur were reviewed.
Noise and Vibration (Section 3.6)	Areas where noise and vibration thresholds may be exceeded that could cause a potential constructive Section 4(f) use were reviewed.
Cultural Resources (Section 3.13)	Cultural resources assessment for NRHP-eligible historic properties that could be Section 4(f) resources were reviewed. ^a
Parklands and Community Services (Section 3.14)	Parklands that could be Section 4(f)/6(f) resources were reviewed.

Notes:

^a This discussion does not include a Section 4(f) analysis of archaeological resources; however, an evaluation of archeological resources would be conducted at the Tier 2/Project-level analysis.

NRHP=National Register of Historic Places

5.4 Affected Environment

5.4.1 Section 4(f)/6(f) Properties

Section 4(f) of the USDOT Act of 1966 protects parks, recreation areas, and refuges that meet the criteria summarized in Table 5-2.

Table 5-2. Section 4(f) Criteria

Criteria	Criteria Summary
Publicly owned	<p>Public ownership, in relation to protected parks, recreation areas, and refuges, refers to ownership by a local, state, or federal government agency. There are three types of public ownership:</p> <ul style="list-style-type: none"> • Fee simple ownership: The land is solely owned by a government entity for park, recreation, or refuge purposes. • Permanent easement for Section 4(f) purposes: The land is not necessarily owned by a government agency; however, the agency possesses an easement for Section 4(f) activities. • Lease agreement for Section 4(f) purposes: Similar to a public easement but with a lease agreement typically intended to be long term.

Criteria	Criteria Summary
Open to the public	A property that is open to the public is one where access is permitted to the entire public during normal hours of operation. A property would not be considered open to the public if access was permitted only to select groups. Wildlife and waterfowl refuges are an exception to this rule, as they may restrict public access either to sensitive areas or during certain times of the year for the protection of refuge habitat and/or species. Therefore, a publicly owned refuge would not have to provide unrestricted access to the public to be considered a Section 4(f) property.
Purposed primarily for park, recreation, or refuge activities	The major purpose is related to the property’s primary function and how it is intended to be managed. Parks and recreation areas typically offer a wide range of activities, such as walking, hiking, or camping, as well as organized sports like soccer, softball, or tennis. Parks can also be fairly passive in nature and may be designated open space without a specified recreational purpose. Refuges refer to properties that are formally part of the National Wildlife Refuge System or other publicly owned land (including waters), where the major purpose of such land is the conservation, restoration, or management of endangered species, their habitat, and other wildlife and waterfowl resources and their habitat.
Parks, recreation areas, and refuges must be significant	The term “significant” means that in comparing the availability and function of the park, recreation area, or refuge with the park, recreation, or refuge objectives of the agency, community, or authority, the property in question plays an important role in meeting those objectives at the national, state, or local level, except for certain multiple-use land holdings. Significance determinations are applicable to the entire property, not just to the portion of the property proposed for use by a project. A determination of significance is made in coordination with the official with jurisdiction, which is most commonly the agency that owns the property. Properties would be presumed significant in the absence of a determination by the official with jurisdiction. All determinations of significance are ultimately made by the federal lead agency.

Potential Section 4(f) properties within the Program Corridor (including parks, recreation areas, wildlife or waterfowl refuges, and historic sites) and Section 6(f) parks funded through LWCF grants are listed in Table 5-3 and depicted on Figure 5-1.

Table 5-3. Potential Section 4(f) and Section 6(f) Properties within the Program Corridor

Resource Type	Western Section	Eastern Section
State or regional park	<ul style="list-style-type: none"> • Yorba Regional Park^b • Featherly Regional Park • Chino Hills State Park 	<ul style="list-style-type: none"> • None

Resource Type	Western Section	Eastern Section
Local park or trail ^a	<ul style="list-style-type: none"> • Los Angeles River • San Gabriel River and Bike Trail • John Zimmerman Park • Neff Park^b • Pacific Drive Park • Adlena Park^b • Pooch Park • Independence Park • Amerige Park • Plaza Park • Lemon Park • Truslow Park • Chapman Park • Santa Fe Park • Parque de Los Ninos^b • Woodgate Park • Santa Ana River Trail • East Side Community Park^b • Vista Lampara Park • Las Brisas Park • Brush Canyon Park • Fresno Canyon • Butterfield Park • Contreras Park • City Park • Don Derr Park • Villegas Park^a • Shamel Park 	<ul style="list-style-type: none"> • Colony Park • Elmer Digneo Park • Baseball Field Park • Lillian V. Miller Memorial Trail • Bryn Mawr Veterans Memorial Park • Leonard Bailey Park • San Timoteo Canyon Park • Pacific Crest Trail • Shadow Hill Community Park • Rangel Park • Veterans Park • Carpenter Hamilton Park • Freedom Park • Yucca Park • Miles Avenue Park • Doug York Plaza • South Jackson Park and Davis Sports Complex • Veterans Park • Dateland Park

Resource Type	Western Section	Eastern Section
	<ul style="list-style-type: none"> Lincoln Park North Park Hunter Park North Street Mini Park West North Street Mini Park East 	
School recreation facilities	<ul style="list-style-type: none"> Pioneer High School Los Nietos Middle School 	<ul style="list-style-type: none"> None
National monument	<ul style="list-style-type: none"> El Pueblo de Los Angeles Historic Monument 	<ul style="list-style-type: none"> Santa Rosa San Jacinto Mountains National Monument
Wildlife refuge	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Whitewater Floodplain Reserve Coachella Valley National Wildlife Refuge
Historic sites ^c	<ul style="list-style-type: none"> 6 NRHP-listed properties^d 	<ul style="list-style-type: none"> 1 NRHP-listed property 36–41 potentially NRHP-eligible properties

Notes:

^a This does not include planned parks.

^b This park was developed with LWCF assistance.

^c Listed, eligible, or potentially eligible NRHP historic properties for the Program Corridor are based on a preliminary survey of existing cultural documentation for the Eastern Section. During future Tier 2/Project-level analysis, additional properties may be identified and considered in a subsequent Section 106 consultation and Section 4(f) evaluation.

^d Historic site data was not obtained for the Western Section per discussion in Section 5.3.

LWCF=Land and Water Conservation Fund; NRHP=National Register of Historic Places

Build Alternative Option 1 (Coachella Terminus)

The total number of acres of potential Section 4(f) and Section 6(f) properties within Build Alternative Option 1 is presented by resource type in Table 5-4. Please refer to Section 3.13, Cultural Resources, of this Tier 1/Program EIS/EIR for additional information on cultural resources present within the Program Corridor and Section 3.14, Parklands and Community Services, of this Tier 1/Program EIS/EIR for additional information on parks present within the Program Corridor.

Table 5-4. Section 4(f)/6(f) Properties by Type (Build Alternative Option 1)

Property Type	Western Section (acres)	Western Section (Total number of properties)	Eastern Section (acres)	Eastern Section (Total number of properties)
State or regional park	449.4	3	—	—
Local park or trail	205.3	33	285.7	19
School recreation facilities ^a	21.9	2	—	0
National monument	1.4	1	442.7	1
Wildlife refuge	—	—	232.7	2
Historic sites ^b	Undetermined	6 NRHP listed properties	Undetermined	1 NRHP listed property; 41 potentially eligible NRHP properties
LWCF grants ^c	116.7	6	52.4	6

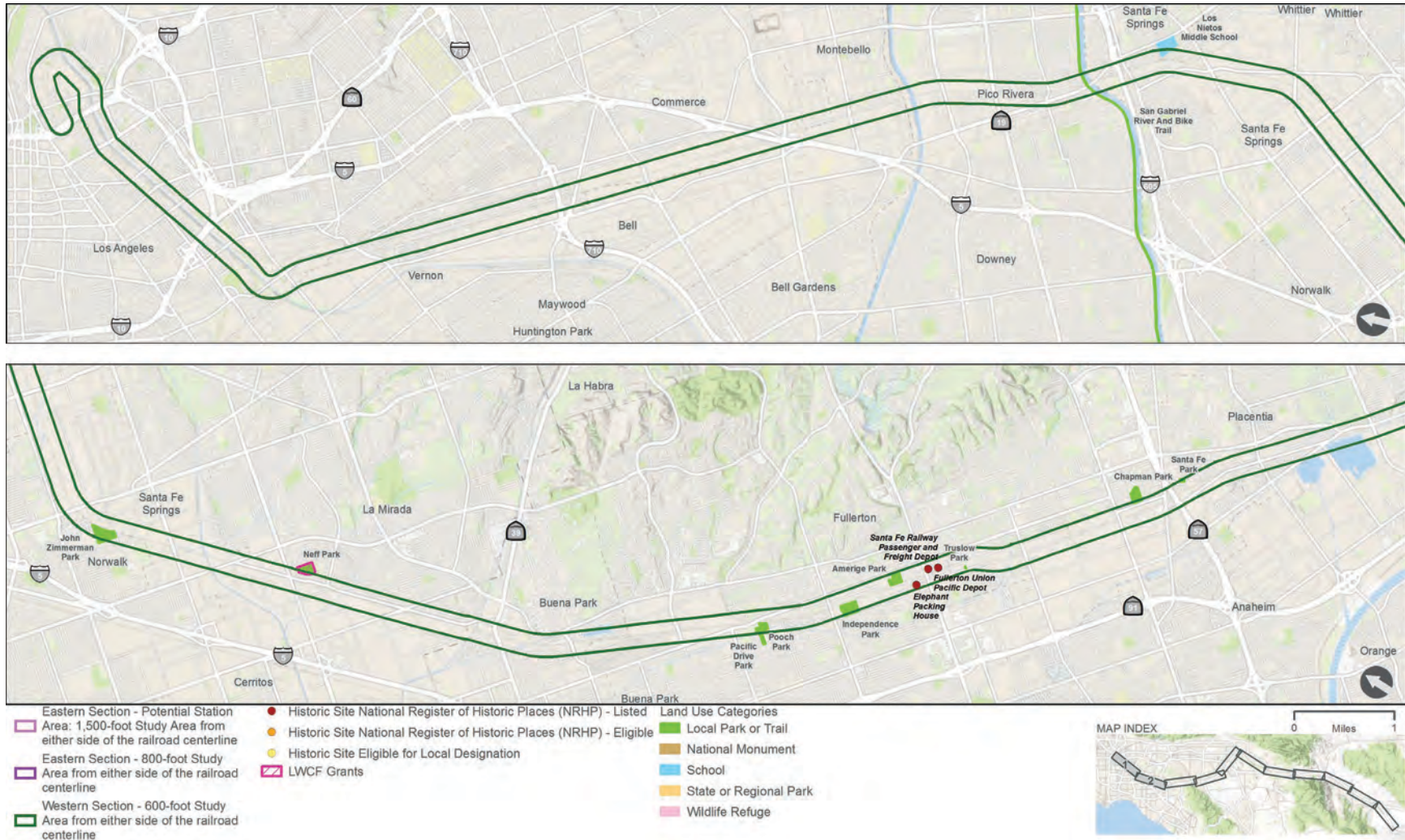
Notes:

- ^a This includes public schools with recreation facilities evident through aerial imagery.
- ^b Historic site data was not obtained for the Western Section, per discussion in Section 5.3.
- ^c Acreage for recreation areas funded through LWCF grants is also included under state or regional park, as well as local park or trail.

LWCF=Land and Water Conservation Fund; NRHP=National Register of Historic Places

Figure 5-1. Section 4(f)/6(f) Resources within the Tier 1/Program EIS/EIR Study Area

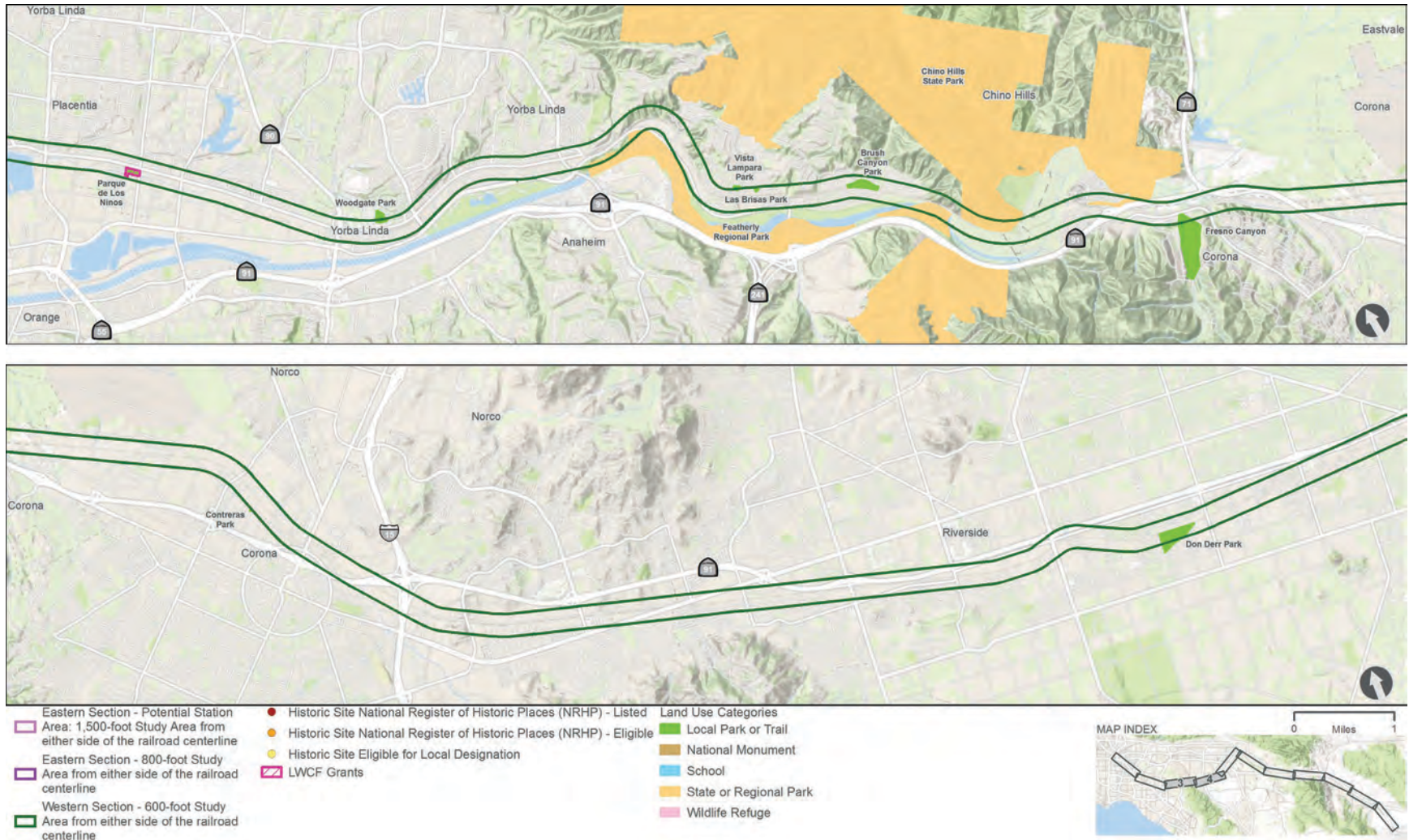
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Figure 5-1. Section 4(f)/6(f) Resources within the Tier 1/Program EIS/EIR Study Area

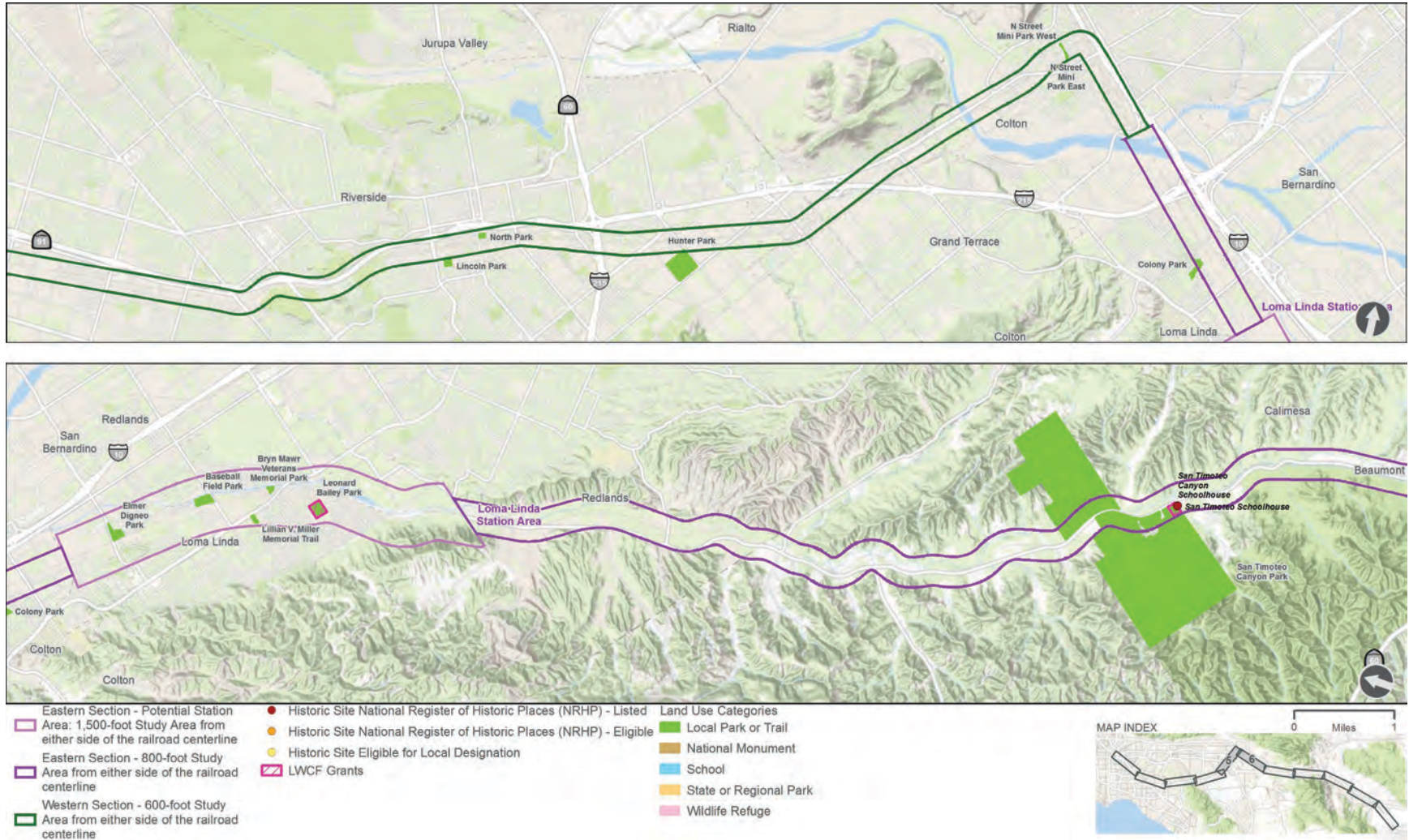
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Figure 5-1 Section 4(f)/6(f) Resources within the Tier 1/Program EIS/EIR Study Area

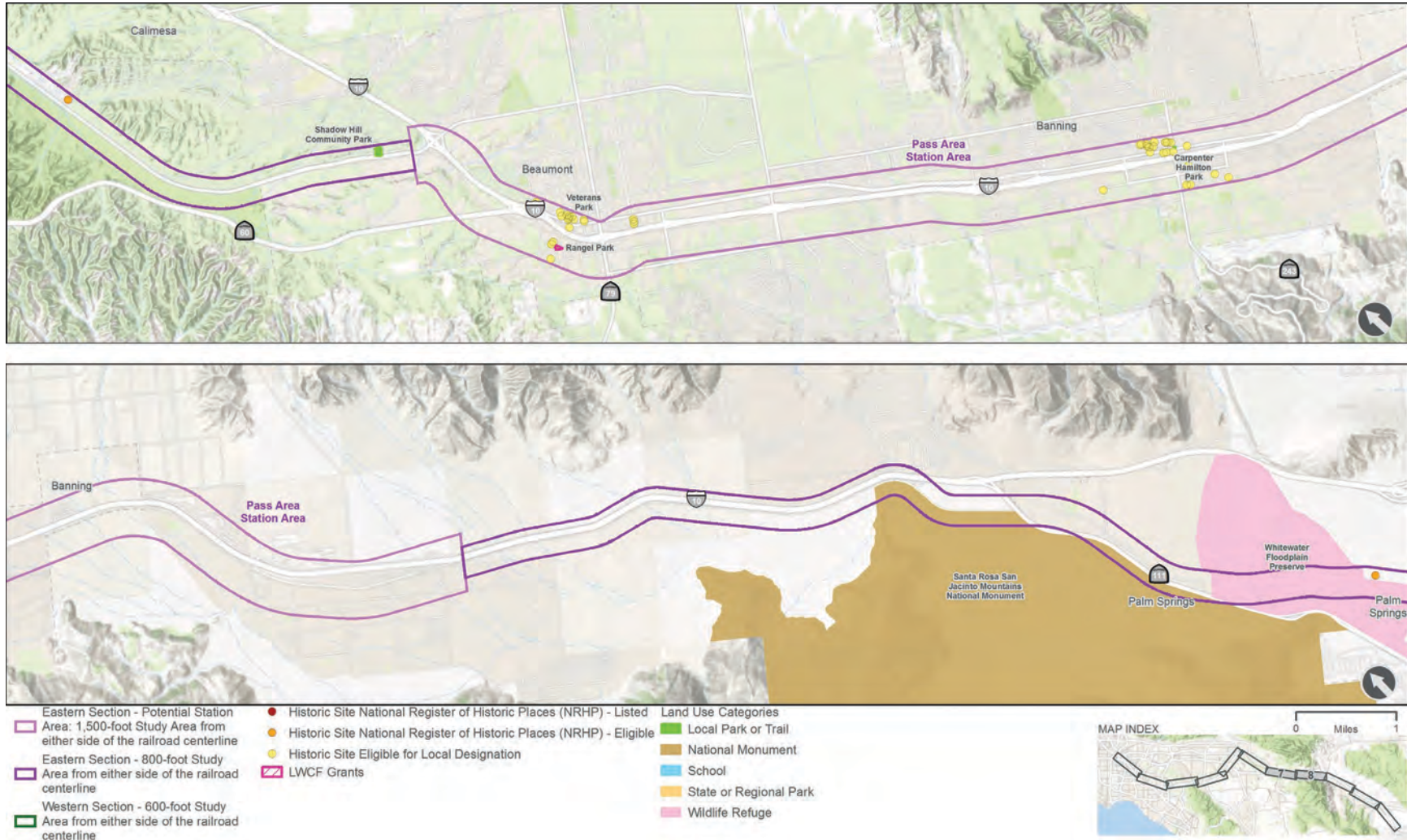
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Figure 5-1. Section 4(f)/6(f) Resources within the Tier 1/Program EIS/EIR Study Area

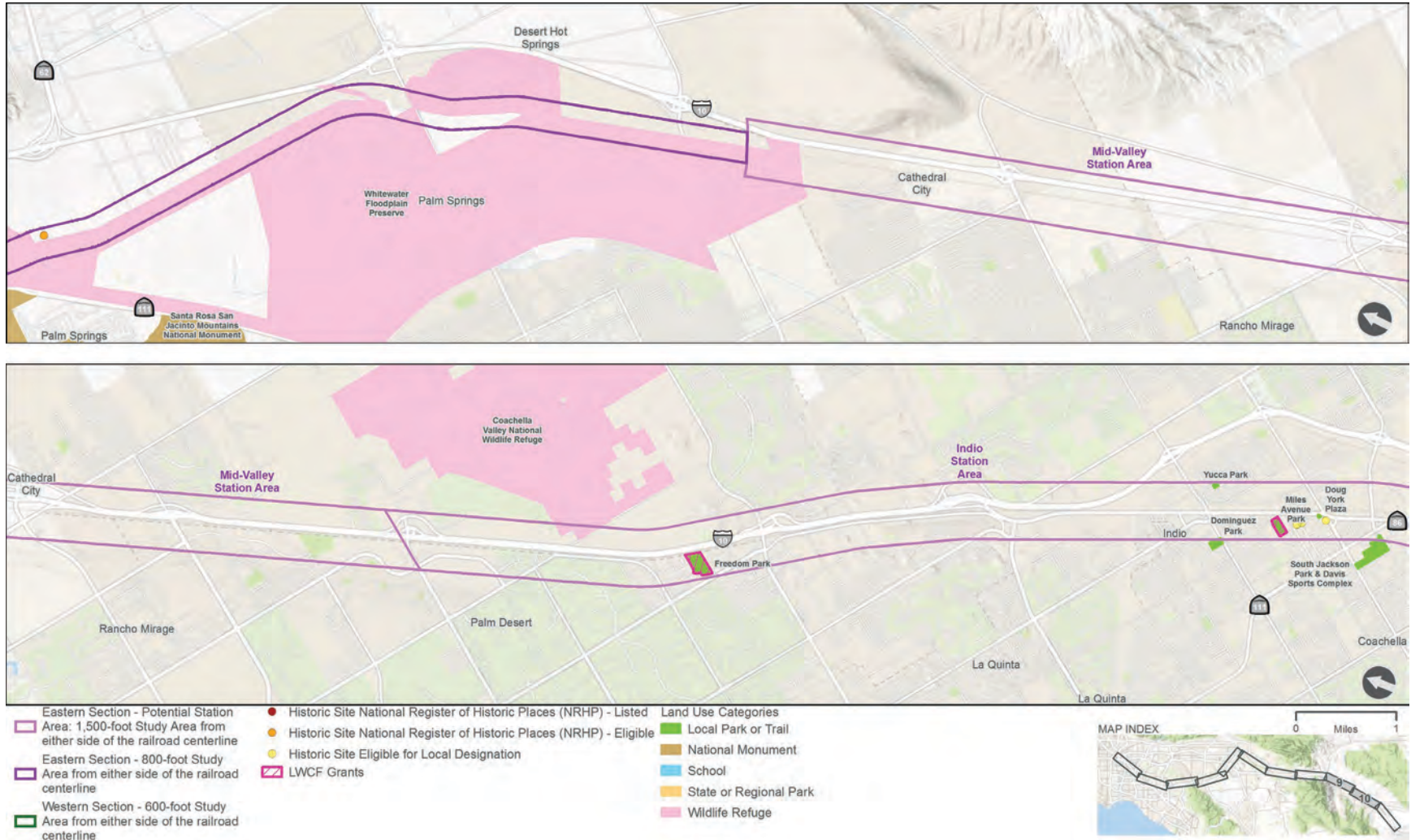
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Figure 5-1. Section 4(f)/6(f) Resources within the Tier 1/Program EIS/EIR Study Area

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Figure 5-1. Section 4(f)/6(f) Resources within the Tier 1/Program EIS/EIR Study Area

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Build Alternative Option 2 (Indio Terminus)

The total number of acres of potential Section 4(f) and Section 6(f) properties within Build Alternative Option 2 is presented by resource type in Table 5-5. Please refer to Section 3.13, Cultural Resources, of this Tier 1/Program EIS/EIR for additional information on cultural resources present within the Program Corridor and Section 3.14, Parklands and Community Services, of this Tier 1/Program EIS/EIR for additional information on parks present within the Program Corridor.

Table 5-5. Section 4(f)/6(f) Properties by Type (Build Alternative Options 2 and 3)

Property Type	Western Section (acres)	Western Section (Total number of properties)	Eastern Section (acres)	Eastern Section (Total number of properties)
State or regional park	449.4	3	—	—
Local park or trail	205.3	33	280.2	18
School recreation facilities ^a	21.9	2	—	0
National monument	1.4	1	442.7	1
Wildlife refuge	—	—	232.7	2
Historic sites ^b	Undetermined	6 NRHP listed properties	Undetermined	1 NRHP listed property; 41 potentially eligible NRHP properties
LWCF grants ^c	116.7	6	50.9	5

Notes:

- ^a This includes public schools with recreation facilities evident through aerial imagery.
- ^b Historic site data was not obtained for the Western Section per discussion in Section 5.3.
- ^c Acreage for recreation areas funded through LWCF grants is also included under state or regional park, as well as local park or trail.

LWCF=Land and Water Conservation Fund; NRHP=National Register of Historic Places

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

Existing information for Section 4(f)/6(f) properties within Build Alternative Option 3 are the same as Build Alternative Option 2.

5.5 Potential Impacts on Section 4(f)/6(f) Resources

5.5.1 No Build Alternative

The No Build Alternative, as described in Chapter 2, Program Alternatives, of this Tier 1/Program EIS/EIR, is used as the baseline for comparison. The No Build Alternative would not implement the Program associated with this service-level evaluation and would not meet the Purpose and Need of the Program. Several existing and committed transportation improvement projects would still occur in the Program Corridor under the No Build Alternative. However, because no physical changes associated with the Program would occur within the Program Corridor, no use of Section 4(f) or 6(f) properties are anticipated under the No Build Alternative.

5.5.2 Build Alternative Options 1, 2, and 3

The use of a protected Section 4(f) property, as defined in 23 CFR Part 774.17, occurs when any of the conditions, discussed in Table 5-6, are met.

Table 5-6. Use of Section 4(f) Resource Summary

Use Type	Use Summary
Permanent/ direct use	A permanent use of a Section 4(f) property occurs when the property is permanently incorporated into a proposed transportation facility. This use may occur as a result of partial or full acquisition or a permanent easement allowing permanent access onto the property for maintenance or other transportation-related purposes.
Constructive use	A constructive use of a Section 4(f) property occurs when a transportation project does not permanently incorporate land from the resource; however, the project's proximity results in impacts so severe that the protected activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only if the protected activities, features, or attributes of the resource are substantially diminished.
Temporary occupancy	A temporary use of a Section 4(f) property results when the Section 4(f) property is required for project construction-related activities, the property is not permanently incorporated into a transportation facility, and the activity is considered adverse by the agency with jurisdiction in terms of the preservation purpose of Section 4(f).

A conversion of a Section 6(f)-protected property occurs when the property is converted to anything other than outdoor recreation. A conversion of use must be in accordance with an existing statewide outdoor recreation plan and must be approved by the U.S. Department of the Interior. If a conversion occurs, the land must be replaced with a property of equivalent value and usefulness. The only type

of use recognized by Section 6(f) is a permanent incorporation. Constructive use or adverse impacts are not considered under Section 6(f), and temporary occupancy during construction is not considered a conversion if the property is restored to its original condition after construction.

Typically, an incorporation of Section 6(f) property for project purposes would be considered a conversion or change in use; however, if the incorporation is necessary as part of a project that would directly enhance the recreational use of the Section 6(f) property, such as improving access for visitors or emergency personnel, then the incorporation of land may not require a conversion because the incorporation would not change or diminish the recreational use of the Section 6(f) property.

Construction

Western Section. The Build Alternative Options would not require construction of additional rail or station infrastructure in the Western Section because the existing railroad infrastructure and stations from LAUS to Colton would be used. Therefore, no potential use of Section 4(f)/6(f) properties is anticipated. When compared with the No Build Alternative, effects related to Section 4(f) property use and Section 6(f) conversion would be negligible because no additional construction activities are planned within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. As summarized in Table 5-4, there are at least 64 Section 4(f) properties within the Eastern Section of Build Alternative Option 1, including 19 parks or recreational properties and 42 historic resources. Of these 64 Section 4(f) properties within Build Alternative Option 1, 6 properties are also considered Section 6(f) properties. As summarized in Table 5-5, there are at least 62 Section 4(f) properties within Build Alternative Option 2 and Build Alternative Option 3, including 17 parks or recreational properties and 42 historic resources. Of these 62 Section 4(f) properties within Build Alternative Option 2 and Build Alternative Option 3, 5 properties are also considered Section 6(f) properties.

Use of Section 4(f) properties and conversion of Section 6(f) properties would vary depending on the future rail infrastructure improvements or station locations within the Eastern Section of the selected Build Alternative Option. Construction activities that have the potential to affect parks, recreation areas, wildlife or waterfowl refuges, and historic sites includes the construction of rail infrastructure improvements and station facilities within the Eastern Section under Build Alternative Options 1, 2, and 3. Potential ROW acquisitions for rail infrastructure improvements (such as sidings, additional main line track, wayside signals, drainage, and grade-separation structures) and station facilities to accommodate the enhanced passenger rail service may be required. This would result in the incorporation of land into a transportation use.

Locations where new station facilities would be constructed would avoid the use of Section 4(f) properties or conversion of Section 6(f) properties, to the extent feasible. However, if Section 4(f)/6(f) properties cannot be avoided, impacts on Section 4(f)/6(f) properties would be minimized and mitigated through measures developed during Tier 2/Project-level analysis.

Operation

Western Section. During operation, passenger train frequencies proposed within the Western Section of the Program Corridor would consist of the addition of two daily, round-trip intercity diesel-powered passenger trains. Operational activities are anticipated to be limited to maintenance of culverts, bridges, embankments, and station areas. Therefore, no potential use of Section 4(f) properties or conversion of Section 6(f) properties is anticipated. When compared with the No Build Alternative, effects related to Section 4(f) property use and Section 6(f) conversion would be negligible because the type of operational activities are anticipated to remain as existing conditions within the Western Section under Build Alternative Options 1, 2, and 3.

Eastern Section. Operational activities within the Eastern Section could result in permanent access restrictions, visual effects, or noise and vibration effects on Section 4(f)/6(f) properties that are in the proximity of the Build Alternative Options. Potential site-specific mitigation measures would be identified during Tier 2/Project-level analysis and would be implemented when avoidance and minimization of impacts are not prudent or feasible.

5.6 Avoidance, Minimization, and Mitigation Strategies

If a Section 4(f) evaluation is required to approve the implementation of the Build Alternative Options, alternatives that completely avoid Section 4(f) and Section 6(f) resources would be developed and evaluated prior to approval. To the extent that resources cannot be avoided, measures to minimize and mitigate impacts would be considered and implemented based on site-specific information available in a Tier 2/Project-level analysis.

6 Other Statutory Considerations

This chapter provides discussion of other statutory requirements under NEPA, CEQA, and FRA's Procedures for Considering Environmental Impacts. These topics include a discussion of growth-inducing impacts, a summary comparison of the Build Alternative Options, and significant and unavoidable effects. Per the requirements of NEPA, this chapter includes a discussion of the relationship between short-term use of the environment and the maintenance and enhancement of long-term productivity. As required by CEQA, this chapter also includes a discussion of potentially growth-inducing impacts, significant unavoidable environmental changes, and impacts that are expected to be less than significant.

6.1 Growth-Inducing Impacts

In accordance with Section 15126.2(d) of the CEQA Guidelines, an EIR must:

Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth... Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also discuss the characteristics of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

Additionally, CEQ regulations, which establish the steps necessary to comply with NEPA, require evaluation of the potential environmental consequences of all proposed federal activities and programs. This provision includes a requirement to examine indirect consequences, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. CEQ regulations, 40 CFR Part 1508.8, refer to these consequences as secondary impacts. Secondary impacts may include changes in land use, economic vitality, and population density, which are all elements of growth.

Substantial growth impacts could be manifested through the provision of infrastructure or service capacity to accommodate growth beyond the levels currently permitted by local or regional plans and policies. In general, growth induced by a project is considered a significant impact if it directly or indirectly affects the ability of agencies to provide needed public services or if it can be demonstrated that the potential growth significantly affects the environment in some other way.

The four-county region of Los Angeles, Orange, Riverside, and San Bernardino Counties (which the Program Corridor crosses) grew by more than 7.4 million people between 1970 and 2010. In 2010, the region was home to approximately 46 percent of the population in the State of California. Los Angeles County has the largest population in the four-county region, followed by Orange County. Growth patterns between 1970 and 2010 showed that Riverside County and San Bernardino County grew at an average annual rate of 4.0 percent and 2.8 percent, respectively, while Los Angeles County and Orange County grew annually by 0.8 percent and 1.9 percent, respectively.

Population projections prepared by the California Department of Finance forecast that the population within the four-county region will continue to grow between 2018 and 2050; however, the annual growth rate is anticipated to slow to 0.5 percent annually for the region as a whole. There are higher annual growth rates forecast for San Bernardino County (1.0 percent) and Riverside County (1.1 percent) compared with Los Angeles County (0.3 percent) and Orange County (0.4 percent) (California Department of Finance 2018).

Despite a forecast slowdown in growth rates, the four-county region is still projected to grow approximately 17 percent overall between 2018 and 2050, for a total population of approximately 21.3 million people in 2050. By then, the four-county region will account for approximately 43 percent of the state population. These growth forecasts suggest that the Program Corridor between Los Angeles and San Bernardino Counties would support a substantial portion of the state's population in 2050.

6.1.1 Western Section

Growth in the Western Section of the Program Corridor is expected with or without the Build Alternative Options. Two additional round-trip daily trains would serve existing stations at LAUS, Fullerton, and Riverside in the Western Section. No new stations or improvements to existing stations would be required to accommodate the proposed service. The Build Alternative Options are not expected to induce additional growth in the Western Section.

6.1.2 Eastern Section

San Bernardino and Riverside Counties have experienced population, housing, and employment growth over the past several decades. As discussed in Section 3.2, Land Use and Planning, of this Tier 1/Program EIS/EIR, there is a planned 18 percent increase in residential uses in the Eastern Section of the Program Corridor. Between 2010 and 2035, population and housing in Riverside County are each anticipated to increase by approximately 63 percent; however, employment is expected to grow faster than housing (County of Riverside 2003). Similarly, San Bernardino County

is expecting an increase in population of 630,000 people, an increase of more than 230,000 homes, and 316,000 additional jobs by 2040 (County of San Bernardino 2014).

Because Riverside County and San Bernardino County supply a portion of the labor pool for the Los Angeles-Orange County metropolitan area, daily round-trip service and new station areas may induce additional housing growth in the new station catchment areas. Build Alternative Option 1 proposes up to five new potential stations within Loma Linda/Redlands, the Pass Area, the Mid-Valley area, and the Cities of Indio and Coachella. Build Alternative Options 2 and 3 propose up to four new potential stations within the Loma Linda/Redlands Area, the Pass Area, the Mid-Valley, and the City of Indio. New stations could also introduce employment opportunities in station areas and catalyze investment in transit-oriented development, including additional housing and business.

6.2 Irreversible and Irrecoverable Commitment of Resources

CEQA requires that irreversible and irretrievable commitment of resources be addressed for certain categories of projects, including “[t]he adoption, amendment, or enactment of a plan, policy, or ordinance of a public agency” and any project also subject to NEPA (CEQA Guidelines CCR Sections 15127[a] and 15127[c]). NEPA requires that an environmental analysis include identification of “...any irreversible and irretrievable commitment of resources which would be involved in the proposed action should it be implemented” (Section 102 [42 USC Section 4332(c)]).

Irreversible and irretrievable resource commitments are related to the use of non-renewable resources and the effects that this use could have on future generations. Commitments of resources could be current, as well as future, with the latter potentially associated with the secondary effect of growth-inducing impacts. Irreversible effects result primarily from the use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable time frame. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action (e.g., extinction of a threatened or endangered species or the disturbance of a cultural resource).

Resources such as timber used for the construction of the potential stations and tracks are generally considered renewable and would ultimately be replenished. Human resources are also considered a renewable resource. Non-renewable resources such as petrochemical construction materials, steel, copper, lead and other metals, gravel, concrete, and other materials are typically considered finite and would not be replenished over the lifetime of the Program.

The construction and implementation of the Build Alternative Options would entail the irreversible and irretrievable commitment of some land and energy and human resources. These resources include the following:

- Commitment of land for transportation purposes
- Commitment of natural resources during construction activities associated with the Program, including the use of construction materials (e.g., steel, concrete, etc.)
- Consumption of non-renewable energy resources, mainly diesel and electricity, as a result of construction, operation, and maintenance of the proposed infrastructure improvements
- Labor expenditure required for the planning, design, construction, and operation of the Build Alternative Options

Land used for new stations and parking areas would likely require property acquisitions, and these properties would be committed to transportation purposes. To the extent that this commitment would be for long-range use, it would be an irreversible commitment. In the event, however, that a greater need would arise for the land in the future or the Program Corridor was no longer needed, the land could conceivably be converted to some other use. Currently, there is no reason to expect that such a need for conversion would ever be necessary or desirable.

In terms of the Build Alternative Options' commitment of resources, there are several resources, both natural and built, that would be expended during the construction and operation of improvements. The Build Alternative Options would result in a short-term increase in the use of energy to manufacture, deliver, and construct the proposed infrastructure improvements. The manufacturing of materials used to construct the Build Alternative Options and energy in the form of natural gas, petroleum products, and electricity consumed during construction and operation would contribute to the incremental depletion of renewable and non-renewable resources. Steel, concrete, and other materials would be recycled, to the extent feasible. However, the loss of these resources is considered irreversible because their reuse for some other purpose than the Build Alternative Options would be highly unlikely or impossible. Based on these considerations, the Program constitutes an irreversible and irretrievable commitment of natural resources.

The Build Alternative Options' use of non-renewable energy sources such as diesel fuel is considered an irreversible, irretrievable commitment of these petroleum resources. However, the commitment of resources to construct and operate the Build Alternative Options is based on the belief that residents, businesses, and visitors would benefit from a safe, reliable, and convenient intercity passenger rail service in the Program Corridor with the capability to meet the future mobility needs. These benefits are anticipated to substantially outweigh any irreversible or irretrievable commitments of resources.

6.3 Relationship between Short-Term Use of the Environment and the Maintenance and Enhancement of Long-Term Productivity

NEPA and CEQA require a review of the balance between short-term uses and long-term productivity of resources within a project area. Potential impacts that narrow the range of beneficial uses to the environment include selecting a development option that reduces the ability to pursue other possibilities or committing a piece of land or other resources to a particular use that limits additional uses being performed on the same site.

Effects on resources are often characterized as being short term or long term in duration. Impacts that occur only during construction are considered temporary. Impacts that occur within a period of 3 years or less would be considered a short-term use and in excess to 3 years would be considered long term. Construction can create temporary water quality effects and increases in noise, emissions, traffic, and human population that can disturb resources in an area but subside when the work is complete. Long-term effects are related to the maintenance and enhancement of long-term productivity, in particular, the consistency of the Program with long-term economic, social, regional, and local planning objectives. These impacts may lead to permanent loss or degradation of resources. As required by PRC Section 21001(g), the short- and long-term effects of the Program under consideration are summarized below.

The Program Corridor faces transportation challenges associated with anticipated population growth, constrained travel options, rail service frequency, and a need for increased travel capacity without impacting air quality and natural resources. These challenges are likely to continue in the future, as continued growth in population and employment is expected to generate increased travel demand. In the short term, construction activities would likely increase employment opportunities, as well as locally purchased materials and services. In the long term, proposed improvements would likely increase the frequency and reliability of intercity rail service.

Implementation of the Build Alternative Options may result in property acquisitions, land use reclassification, and potential disruption of biological and wetland resources during construction and operation. Future Tier 2/Project-level environmental review would consider these factors in more detail, as specific rail infrastructure improvements and station facilities are carried forward. While some of the proposed improvements may disrupt the existing conditions of the area, short- and long-term benefits would also result and should be considered accordingly.

Implementation of the Build Alternative Options would increase travel options and improve mobility throughout the region, as well as provide additional capacity to meet growing travel demand between the Los Angeles Basin and the Coachella Valley.

6.4 Significant and Unavoidable Environmental Effects

Section 15126.2(c) of the CEQA Guidelines requires EIRs to include a discussion of any significant environmental impacts that cannot be avoided if the Program is implemented. Sections 3.2 through 3.16 of this Tier 1/Program EIS/EIR provide a Program-level evaluation of potentially significant environmental effects related to the Program and identifies potential mitigation strategies, where available, that could avoid or reduce these significant impacts. If, after mitigation, a specific effect cannot be fully reduced to a less than significant level, it is considered a potentially significant and unavoidable impact at the Tier 1/Program EIS/EIR service-level evaluation.

As discussed, this Tier 1/Program EIS/EIR evaluates the potential for substantial effects from the Build Alternative Options and offers mitigation strategies that could potentially avoid or minimize impacts on resources through further design or other measures identified at the Tier 2/Project-level analysis. Implementation of the Build Alternative Options could result in a significant and unavoidable impacts on the following resources:

- **Land Use and Planning.** Implementation of the Build Alternative Options has the potential to conflict with local land use plans and polices and covert designated farmland to transportation use. Mitigation may reduce, avoid, or minimize these potentially significant impacts; however, impacts may also remain significant and unavoidable if further analysis shows that they cannot be sufficiently mitigated (Section 3.2, Land Use and Planning, of this Tier 1/Program EIS/EIR for details).
- **Transportation.** Implementation of the Build Alternative Options has the potential to conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities at a local level. Mitigation may reduce, avoid, or minimize these potentially significant impacts; however, impacts may also remain significant and unavoidable if further analysis shows that they cannot be sufficiently mitigated (Section

3.3, Transportation, of this Tier 1/Program EIS/EIR for details). However, implementation of the Build Alternative Options would also improve regional mobility and access through the provision of an enhanced passenger rail system.

- **Visual Quality and Aesthetics.** Implementation of the Build Alternative Options has the potential to result in significant and unavoidable impacts on scenic vistas, visual character, and visual quality, as well as light and glare. Mitigation may reduce, avoid, or minimize these potentially significant impacts; however, impacts may also remain significant and unavoidable if further analysis shows that they cannot be sufficiently mitigated (Section 3.4, Visual Quality and Aesthetics, of this Tier 1/Program EIS/EIR for details).
- **Air Quality.** The location and number of new stations, infrastructure improvement locations, and construction methods have not yet been selected; however, construction of the Build Alternative Options has the potential to generate emissions that exceed the SCAQMD daily criteria pollutant and localized significance thresholds. However, implementation of the Build Alternative Options would also improve regional air quality through the provision of an enhanced passenger rail system (Section 3.5, Air Quality and Greenhouse Gases, of this Tier 1/Program EIS/EIR for details).
- **Noise and Vibration.** Implementation of the Build Alternative Options has the potential to generate noise during construction and operation within the Eastern Section, which could result in an exceedance of local noise standards. Mitigation may reduce, avoid, or minimize these potentially significant impacts; however, impacts may also remain significant and unavoidable if further analysis shows that there is a conflict that cannot be mitigated between land uses (Section 3.6, Noise and Vibration, of this Tier 1/Program EIS/EIR for details).
- **Biological Resources.** Implementation of the Build Alternative Options has the potential to result in significant and unavoidable impacts on sensitive vegetation communities, special-status plant and wildlife species, wildlife corridors and habitat linkages, as well as significant and unavoidable conflicts with local plans and policies intended to protect natural resources. Mitigation may reduce, avoid, or minimize these potentially significant impacts; however, impacts may also remain significant and unavoidable if further analysis shows that there is a conflict that cannot be mitigated between land uses (Section 3.8, Biological Resources, of this Tier 1/Program EIS/EIR for details).
- **Floodplains, Hydrology, and Water Quality.** Implementation of the Build Alternative Options has the potential to result in impacts on surface and groundwater resources. Mitigation may reduce, avoid, or minimize these potentially significant impacts; however, impacts may also remain significant and unavoidable if further analysis shows that that

impacts cannot be sufficiently mitigated (Section 3.9, Floodplains, Hydrology, and Water Quality) of this Tier 1/Program EIS/EIR for details).

- **Geology, Soils, Seismicity, and Paleontological Resources.** Implementation of the Build Alternative Options within the Eastern Section has the potential to result in significant and unavoidable impacts on paleontological and mineral resources, as construction of the Build Alternatives (specifically, construction of the proposed stations) would require grading and excavation in areas that are paleontologically sensitive or within MRZs. Mitigation may reduce, avoid, or minimize these potentially significant impacts; however, impacts may also remain significant and unavoidable if further analysis shows that land use conflicts cannot be mitigated or if accidental destruction to previously undiscovered paleontological resources were to occur (Section 3.10, Geology, Soils, Seismicity, and Paleontological Resources, of this Tier 1/Program EIS/EIR for details).
- **Public Utilities and Energy.** Implementation of the Build Alternative Options has the potential to result in significant and unavoidable impacts on public utilities. Specifically, implementation of the Build Alternative Options could require potable water supplies at new rail stations, which are not currently identified. Mitigation may reduce, avoid, or minimize these potentially significant impacts; however, impacts may remain significant and unavoidable if further analysis determines that the operational activities would result in water supply impacts (Section 3.12, Public Utilities and Energy, of this Tier 1/Program EIS/EIR for details).
- **Cultural Resources.** Implementation of the Build Alternative Options has the potential to result in significant and unavoidable impacts on cultural, historic, and TCRs, as construction (specifically, construction of the proposed stations) would require grading and excavation in areas that may contain known and unknown resources. Mitigation may reduce, avoid, or minimize these potentially significant impacts; however, impacts may remain significant and unavoidable if mitigation would not sufficiently reduce land use conflicts or if accidental destruction to previously undiscovered cultural resources were to occur (Section 3.13, Cultural Resources, of this Tier 1/Program EIS/EIR for details).
- **Parklands and Community Services.** Implementation of the Build Alternative Options has the potential to result in impacts on parklands and community services due to the potential need of parkland acquisitions. Mitigation may reduce, avoid, or minimize these potentially significant impacts; however, impacts may remain significant and unavoidable if mitigation would not sufficiently reduce land use conflicts with existing parkland resources (Section 3.14, Parklands and Community Services, of this Tier 1/Program EIS/EIR for details).

7 Evaluation of Alternatives

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, a reasonable range of alternatives were evaluated in this Tier 1/Program EIS/EIR.

The alternatives include the No Build Alternative, which is used as a baseline for comparison purposes and describes the impacts if the Program is not implemented. In addition, the Build Alternative is described with three implementation options, which are described in Chapter 2, Program Alternatives, of this Tier 1/Program EIS/EIR. The alternatives selection process is summarized in Chapter 2, Program Alternatives, of this Tier 1/Program EIS/EIR. The 2016 AA Report included an evaluation of a reasonable range of alternatives for implementation of daily intercity passenger rail service in the Program Corridor.

This chapter describes the preferred alternative and the environmentally superior alternative for the Tier 1/Program EIS/EIR for purposes of NEPA and CEQA, respectively. This chapter also summarizes the potential effects of implementation of the Build Alternative Options based on the analysis of the social, economic, and environmental resources documented in Chapter 3, Environmental Analysis, Consequences, and Mitigation. The potential effects, and differences in effects among Build Alternative Options, are described in each resource section and are summarized below. Station locations have not yet been selected, but general considerations regarding station effects are discussed.

The potential for effects and comparison of effects among the Build Alternative Options are summarized in Table 7-1 and based on an initial survey of resources within the Tier 1/Program EIS/EIR Study Area for each Build Alternative Option.

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Table 7-1. Summary of Resource Effects by the No Build Alternative and Build Alternative Options

Environmental Topic	No Build Alternative	Build Alternative Option 1	Build Alternative Option 2	Build Alternative Option 3
Land Use and Planning	<p>Land Use Compatibility</p> <p>Under the No Build Alternative, passenger rail service between Coachella and Los Angeles would not be established, and land would not be allocated for rail infrastructure or station facilities. Although this may prevent potential displacements of existing and planned land uses, it would increase the likelihood for displacing land uses adjacent to existing highways, such as I-10, SR 60, and SR 111, which would likely need to be widened to accommodate the projected demands for capacity as population in the region increases. In addition, the No Build Alternative would be inconsistent with federal, state, and regional plans and policies that promote expansion of existing transportation options, as well as multimodal connectivity throughout the region.</p> <p>Agricultural Resources</p> <p>No effects on agricultural resources are anticipated under the No Build Alternative.</p>	<p>Land Use Compatibility</p> <p><i>Construction:</i> Negligible effects within Western Section as no construction activities required. Potentially moderate effects could occur within the Eastern Section due to temporary construction effects and permanent ROW acquisitions beyond the extent of the existing railroad ROW.</p> <p><i>Operation:</i> Negligible effects within Western Section as no additional stations or rail infrastructure are required or land use changes anticipated. Potentially moderate effects could occur within the Eastern Section due to the land use changes associated with the addition of new stations and track infrastructure.</p> <p>Agricultural Resources</p> <p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Substantial effects could occur within the Eastern Section associated with conversion of designated agricultural land to non-agricultural use.</p> <ul style="list-style-type: none"> • Prime farmland: 560.40 acres • Unique farmland: 96.70 acres • Farmland of statewide importance: 22.60 acres • Farmland of local importance: 2,623.90 acres • Grazing land: 1,923.20 acres • Agricultural preserve: 760.82 acres <p><i>Operation:</i> Negligible effects in Western Section and Eastern Section once construction activities are completed.</p>	<p>Land Use Compatibility</p> <p><i>Construction:</i> Negligible effects within Western Section as no construction activities required. Potentially moderate effects could occur within the Eastern Section due to temporary construction effects and permanent ROW acquisitions beyond the extent of the existing railroad ROW.</p> <p><i>Operation:</i> Negligible effects within Western Section as no additional stations or rail infrastructure are required or land use changes anticipated. Potentially moderate effects could occur within the Eastern Section due to the land use changes associated with the addition of new stations and track infrastructure.</p> <p>Agricultural Resources</p> <p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Substantial effects could occur within the Eastern Section associated with conversion of designated agricultural land to non-agricultural use.</p> <ul style="list-style-type: none"> • Prime farmland: 362.50 acres • Unique farmland: 96.70 acres • Farmland of statewide importance: 22.60 acres • Farmland of local importance: 2,549.90 acres • Grazing land: 1,923.20 acres • Agricultural preserve: 760.82 acres <p><i>Operation:</i> Negligible effects in Western Section and Eastern Section once construction activities are completed.</p>	<p>Land Use Compatibility</p> <p><i>Construction:</i> Negligible effects within Western Section as no construction activities required. Potentially moderate effects could occur within the Eastern Section due to temporary construction effects and permanent ROW acquisitions beyond the extent of the existing railroad ROW.</p> <p><i>Operation:</i> Negligible effects within Western Section as no additional stations or rail infrastructure are required or land use changes anticipated. Potentially moderate effects could occur within the Eastern Section due to the land use changes associated with the addition of new stations and track infrastructure.</p> <p>Agricultural Resources</p> <p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Substantial effects could occur within the Eastern Section associated with conversion of designated agricultural land to non-agricultural use.</p> <ul style="list-style-type: none"> • Prime farmland: 362.50 acres • Unique farmland: 96.70 acres • Farmland of statewide importance: 22.60 acres • Farmland of local importance: 2,549.90 acres • Grazing land: 1,923.20 acres • Agricultural preserve: 760.82 acres <p><i>Operation:</i> Negligible effects in Western Section and Eastern Section once construction activities are completed.</p>

Environmental Topic	No Build Alternative	Build Alternative Option 1	Build Alternative Option 2	Build Alternative Option 3
Transportation	<p>Under the No Build Alternative, longer travel times and increased VMT would be anticipated as regional growth within the Program Corridor continues and roadway congestion increases. Therefore, the No Build Alternative could result in air quality effects and potential additional noise effects on the surrounding land uses, which could affect sensitive receptors adjacent to existing transportation corridors.</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Moderate to substantial effects in Eastern Section associated with rail operations, railroad/roadway crossings, and traffic due to potential temporary closure of lanes, sidewalks, bicycle lanes and routes, driveways, streets, and freeway lanes.</p> <p><i>Operation:</i> Build Alternative Option 1 is anticipated to shift auto trips to intercity rail passenger trips, thereby reducing vehicle trips and VMT on the regional highways.</p> <p><i>Annual Auto Trips and VMT Reduction by Horizon Year:</i></p> <p>Opening Year (2024) auto trip reduction: 107,344 trips Opening Year (2024) VMT reduction: 10,498,246 miles Future Year (2044) auto trip reduction: 178,045 trips Future Year (2044) VMT reduction: 17,412,809 miles</p> <p><i>Ridership:</i> Expected to increase by 66 percent from 204,107 one-way trips in Opening Year (2024) to 338,540 one-way trips in Future Year (2044).</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Moderate to substantial effects in Eastern Section associated with rail operations, railroad/roadway crossings, and traffic due to potential temporary closure of lanes, sidewalks, bicycle lanes and routes, driveways, streets, and freeway lanes.</p> <p><i>Operation:</i> Build Alternative Option 2 is anticipated to shift auto trips to intercity rail passenger trips, thereby reducing vehicle trips and VMT on the regional highways.</p> <p><i>Annual Auto Trips and VMT Reduction by Horizon Year:</i></p> <p>Opening Year (2024) auto trip reduction: 99,026 trips Opening Year (2024) VMT reduction: 9,682,718 miles Future Year (2044) auto trip reduction: 164,248 trips Future Year (2044) VMT reduction: 16,060,152 miles</p> <p><i>Ridership:</i> Expected to increase by 66 percent from 188,290 one-way trips in Opening Year (2024) to 312,306 one-way trips in Future Year (2044).</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Moderate to substantial effects in Eastern Section associated with rail operations, railroad/roadway crossings, and traffic due to potential temporary closure of lanes, sidewalks, bicycle lanes and routes, driveways, streets, and freeway lanes.</p> <p><i>Operation:</i> Build Alternative Option 3 is anticipated to shift auto trips to intercity rail passenger trips, thereby reducing vehicle trips and VMT on the regional highways.</p> <p><i>Annual Auto Trips and VMT Reduction by Horizon Year:</i></p> <p>Opening Year (2024) auto trip reduction: 99,026 trips Opening Year (2024) VMT reduction: 9,682,718 miles Future Year (2044) auto trip reduction: 164,248 trips Future Year (2044) VMT reduction: 16,060,152 miles</p> <p><i>Ridership:</i> Expected to increase by 66 percent from 188,290 one-way trips in Opening Year (2024) to 312,306 one-way trips in Future Year (2044).</p>
Visual Quality and Aesthetics	<p>Because no physical changes would occur, no effects on views of visual resources, visual character or quality, or light and glare conditions are anticipated under the No Build Alternative.</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Negligible effects on visual quality and aesthetics within the Eastern Section as construction activities would not permanently obstruct views of the landscape, change the visual character, result in degradation of visual quality, or add significant new sources of light or glare.</p> <p><i>Operation:</i> Negligible effects in Western Section as trains would operate within existing ROW and the addition of two daily roundtrips would not result in notable changes to visual quality and aesthetics. Potentially moderate effects could occur in the Eastern Section if the improvements would remove structures, remove landscaping, or introduce visual elements that are out of scale or otherwise visually incompatible with the existing visual character, and/or add increased light levels or spillover lighting into adjacent areas.</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Negligible effects on visual quality and aesthetics within the Eastern Section as construction activities would not permanently obstruct views of the landscape, change the visual character, result in degradation of visual quality, or add significant new sources of light or glare.</p> <p><i>Operation:</i> Negligible effects in Western Section as trains would operate within existing ROW and the addition of two daily roundtrips would not result in notable changes to visual quality and aesthetics. Potentially moderate effects could occur in the Eastern Section if the improvements would remove structures, remove landscaping, or introduce visual elements that are out of scale or otherwise visually incompatible with the existing visual character, and/or add increased light levels or spillover lighting into adjacent areas.</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Negligible effects on visual quality and aesthetics within the Eastern Section as construction activities would not permanently obstruct views of the landscape, change the visual character, result in degradation of visual quality, or add significant new sources of light or glare.</p> <p><i>Operation:</i> Negligible effects in Western Section as trains would operate within existing ROW and the addition of two daily roundtrips would not result in notable changes to visual quality and aesthetics. Potentially moderate effects could occur in the Eastern Section if the improvements would remove structures, remove landscaping, or introduce visual elements that are out of scale or otherwise visually incompatible with the existing visual character, and/or add increased light levels or spillover lighting into adjacent areas.</p>

Environmental Topic	No Build Alternative	Build Alternative Option 1	Build Alternative Option 2	Build Alternative Option 3
		<p><i>Visual Resources:</i></p> <p>Park/trail: 27</p> <p>Designated scenic highway: 0</p> <p>NRHP site: 7</p> <p>NRHP district: 1</p>	<p><i>Visual Resources:</i></p> <p>Park/trail: 25</p> <p>Designated scenic highway: 0</p> <p>NRHP site: 7</p> <p>NRHP district: 1</p>	<p><i>Visual Resources:</i></p> <p>Park/trail: 25</p> <p>Designated scenic highway: 0</p> <p>NRHP site: 7</p> <p>NRHP district: 1</p>
Air Quality and Greenhouse Gases	<p>Projected future growth in the Program Corridor would result in a corresponding increase in traffic and VMT as more cars would be on the roadways. Therefore, traffic congestion is likely to worsen with the No Build Alternative, resulting in air quality effects. Similarly, with the continued trend in increases of VMT within the Program Corridor, fossil fuel consumption and associated GHG emissions would likely increase under the No Build Alternative. Similarly, while no Program-related construction or increase in service would occur, freight and intercity rails trips from other planned and future projects would result in air quality effects within the Program Corridor under the No Build Alternative.</p>	<p><i>Construction:</i> Negligible air quality and GHG effects in the Western Section as no construction activities are proposed. Substantial air quality effects in the Eastern Section could occur due to construction air quality emissions exceeding localized air quality standards.</p> <p><i>Operation:</i> Localized air quality effects could be substantial; however, operation of the Program would generally result in long-term net benefits to air quality through reduction of criteria pollutants through a decrease in regional VMT. Substantial GHG benefits are anticipated as operation would reduce regional vehicle trips and VMT, resulting in a reduction of GHG emissions.</p>	<p><i>Construction:</i> Negligible air quality and GHG effects in the Western Section as no construction activities are proposed. Substantial air quality effects in the Eastern Section could occur due to construction air quality emissions exceeding localized air quality standards.</p> <p><i>Operation:</i> Localized air quality effects could be substantial; however, operation of the Program would generally result in long-term net benefits to air quality through reduction of criteria pollutants through a decrease in regional VMT. Substantial GHG benefits are anticipated as operation would reduce regional vehicle trips and VMT, resulting in a reduction of GHG emissions.</p>	<p><i>Construction:</i> Negligible air quality and GHG effects in the Western Section as no construction activities are proposed. Substantial air quality effects in the Eastern Section could occur due to construction air quality emissions exceeding localized air quality standards.</p> <p><i>Operation:</i> Localized air quality effects could be substantial; however, operation of the Program would generally result in long-term net benefits to air quality through reduction of criteria pollutants through a decrease in regional VMT. Substantial GHG benefits are anticipated as operation would reduce regional vehicle trips and VMT, resulting in a reduction of GHG emissions.</p>
Noise and Vibration	<p>No Program-related construction or increase in service would occur; however, freight and intercity train trips would increase in frequency due to regional growth and demand from other projects. Under the No Build Alternative, ambient noise and vibration levels from existing train operations and local traffic would continue. While no Program-related construction or increase in service would occur, rail noise is anticipated to increase within the Program Corridor.</p>	<p><i>Construction:</i> Negligible noise and vibration effects in the Western Section as no construction activities are proposed. Substantial noise effects and moderate vibration effects in the Eastern Section due to construction noise and vibration levels exceeding FTA or local standards at sensitive receptors.</p> <p><i>Operation:</i> Negligible noise and vibration effects associated with continued operation of trains and stations within Western Section. Moderate noise effects within the Eastern Section due to addition of new station locations and new rail infrastructure, which could have an effect on adjacent noise sensitive uses. Negligible vibration effects within the Eastern Section.</p>	<p><i>Construction:</i> Negligible noise and vibration effects in the Western Section as no construction activities are proposed. Substantial noise effects and moderate vibration effects in the Eastern Section due to construction noise and vibration levels exceeding FTA or local standards at sensitive receptors.</p> <p><i>Operation:</i> Negligible noise and vibration effects associated with continued operation of trains and stations within Western Section. Moderate noise effects within the Eastern Section due to addition of new station locations and new rail infrastructure, which could have an effect on adjacent noise sensitive uses. Negligible vibration effects within the Eastern Section.</p>	<p><i>Construction:</i> Negligible noise and vibration effects in the Western Section as no construction activities are proposed. Substantial noise effects and moderate vibration effects in the Eastern Section due to construction noise and vibration levels exceeding FTA or local standards at sensitive receptors.</p> <p><i>Operation:</i> Negligible noise and vibration effects associated with continued operation of trains and stations within Western Section. Moderate noise effects within the Eastern Section due to addition of new station locations and new rail infrastructure, which could have an effect on adjacent noise sensitive uses. Negligible vibration effects within the Eastern Section.</p>

Environmental Topic	No Build Alternative	Build Alternative Option 1	Build Alternative Option 2	Build Alternative Option 3
<p>Jurisdictional Waters and Wetland Resources</p>	<p>No effects on jurisdictional waters and wetland resources are anticipated under the No Build Alternative.</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects in the Eastern Section due to temporary construction activities in proximity to jurisdictional waters and wetlands.</p> <p><i>Operation:</i> Negligible effects in Western Section associated with continued operation of trains and stations within existing ROW. Potentially moderate effects in the Eastern Section associated with maintenance of culverts, bridges, embankments, and station areas.</p> <p><i>Waterbodies:</i> 38 waterbodies</p> <p><i>Wetlands:</i> 355 wetlands (731 acres)</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects in the Eastern Section due to temporary construction activities in proximity to jurisdictional waters and wetlands.</p> <p><i>Operation:</i> Negligible effects in Western Section associated with continued operation of trains and stations within existing ROW. Potentially moderate effects in the Eastern Section associated with maintenance of culverts, bridges, embankments, and station areas.</p> <p><i>Waterbodies:</i> 38 waterbodies</p> <p><i>Wetlands:</i> 353 wetlands (729.78 acres)</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects in the Eastern Section due to temporary construction activities in proximity to jurisdictional waters and wetlands.</p> <p><i>Operation:</i> Negligible effects in Western Section associated with continued operation of trains and stations within existing ROW. Potentially moderate effects in the Eastern Section associated with maintenance of culverts, bridges, embankments, and station areas.</p> <p><i>Waterbodies:</i> 38 waterbodies</p> <p><i>Wetlands:</i> 353 wetlands (729.78 acres)</p>
<p>Biological Resources</p>	<p>No effects on biological resources are anticipated under the No Build Alternative.</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Substantial construction effects within the Eastern Section due to the numerous biological resources within the Program’s potential construction footprint.</p> <p><i>Operation:</i> Negligible effects in Western Section associated with continued operation of trains and stations within existing ROW. Potentially moderate effects in the Eastern Section associated with maintenance activities (e.g., application of pesticides and herbicides, addition of light sources that could disrupt wildlife habitat/movement and increased human activity).</p> <p><i>Sensitive Vegetation Communities:</i> 5 sensitive communities with potential to occur</p> <p><i>Special-Status Plant Species:</i> 22 species with potential to occur</p> <p><i>Special-Status Wildlife Species:</i> 66 species with potential to occur</p> <p><i>Wildlife Movement Corridors:</i> 1 (San Bernardino-San Jacinto Connection)</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Substantial construction effects within the Eastern Section due to the numerous biological resources within the Program’s potential construction footprint.</p> <p><i>Operation:</i> Negligible effects in Western Section associated with continued operation of trains and stations within existing ROW. Potentially moderate effects in the Eastern Section associated with maintenance activities (e.g., application of pesticides and herbicides, addition of light sources that could disrupt wildlife habitat/movement and increased human activity).</p> <p><i>Sensitive Natural Communities:</i> 5 sensitive communities with potential to occur</p> <p><i>Special-Status Plant Species:</i> 22 species with potential to occur</p> <p><i>Special-Status Wildlife Species:</i> 66 species with potential to occur</p> <p><i>Wildlife Movement Corridors:</i> 1 (San Bernardino-San Jacinto Connection)</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Substantial construction effects within the Eastern Section due to the numerous biological resources within the Program’s potential construction footprint.</p> <p><i>Operation:</i> Negligible effects in Western Section associated with continued operation of trains and stations within existing ROW. Potentially moderate effects in the Eastern Section associated with maintenance activities (e.g., application of pesticides and herbicides, addition of light sources that could disrupt wildlife habitat/movement and increased human activity).</p> <p><i>Sensitive Natural Communities:</i> 5 sensitive communities with potential to occur</p> <p><i>Special-Status Plant Species:</i> 22 species with potential to occur</p> <p><i>Special-Status Wildlife Species:</i> 66 species with potential to occur</p> <p><i>Wildlife Movement Corridors:</i> 1 (San Bernardino-San Jacinto Connection)</p>

Environmental Topic	No Build Alternative	Build Alternative Option 1	Build Alternative Option 2	Build Alternative Option 3
Floodplains, Hydrology, and Water Quality	No effects on floodplains, hydrology, or water quality are anticipated under the No Build Alternative.	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects within the Eastern Section on floodplains, hydrology, and water quality would occur as a result of construction activities in proximity to these water resources.</p> <p><i>Operation:</i> Negligible effects in both the Western and Eastern Sections due to compliance with legislation governing impacts on water resources.</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects within the Eastern Section on floodplains, hydrology, and water quality would occur as a result of construction activities in proximity to these water resources.</p> <p><i>Operation:</i> Negligible effects in both the Western and Eastern Sections due to compliance with legislation governing impacts on water resources.</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects within the Eastern Section on floodplains, hydrology, and water quality would occur as a result of construction activities in proximity to these water resources.</p> <p><i>Operation:</i> Negligible effects in both the Western and Eastern Sections due to compliance with legislation governing impacts on water resources.</p>
Geology, Soils, Seismicity, and Paleontological Resources	Because no physical changes associated with the Program would occur, no effects on geology, soils, seismicity, and paleontological and mineral resources are anticipated under the No Build Alternative. However, due to the seismic nature of Southern California, geologic hazards such as seismically induced fault rupture, ground shaking, landslides, and liquefaction may still occur under the No Build Alternative.	<p><i>Seismic and Geologic Hazards</i></p> <p><i>Construction.</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects in the Eastern Section due to construction in areas within seismic zones and areas geologically ill-suited (e.g., prone to landslides, underlain by expansive soils, etc.) to railroad infrastructure.</p> <p><i>Operation.</i> Negligible effects in Western Section as no additional infrastructure proposed. Potentially moderate effects in the Eastern Section due to the proposed route alternative traversing a seismically active region.</p> <p><i>Paleontological Resources</i></p> <p><i>Construction.</i> Negligible effects in Western Section as no construction activities required. Substantial effects in the Eastern Section due to excavation within paleontologically sensitive areas.</p> <p><i>Operation.</i> Negligible effects as operation in the Western and Eastern Sections would not involve sub-surface excavations.</p> <p><i>Mineral Resources</i></p> <p><i>Construction.</i> Negligible effects in Western Section as no construction activities required. Substantial effects in the Eastern Section as land designated for mineral resource extraction could be converted to transportation use.</p> <p><i>Operation.</i> Negligible effects in the Western and Eastern Sections as operation would not involve sub-surface excavations.</p>	<p><i>Seismic and Geologic Hazards</i></p> <p><i>Construction.</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects in the Eastern Section due to construction in areas within seismic zones and areas geologically ill-suited (e.g., prone to landslides, underlain by expansive soils, etc.) to railroad infrastructure.</p> <p><i>Operation.</i> Negligible effects in Western Section as no additional infrastructure proposed. Potentially moderate effects in the Eastern Section due to the proposed route alternative traversing a seismically active region.</p> <p><i>Paleontological Resources</i></p> <p><i>Construction.</i> Negligible effects in Western Section as no construction activities required. Substantial effects in the Eastern Section due to excavation within paleontologically sensitive areas.</p> <p><i>Operation.</i> Negligible effects as operation in the Western and Eastern Sections would not involve sub-surface excavations.</p> <p><i>Mineral Resources</i></p> <p><i>Construction.</i> Negligible effects in Western Section as no construction activities required. Substantial effects in the Eastern Section as land designated for mineral resource extraction could be converted to transportation use.</p> <p><i>Operation.</i> Negligible effects in the Western and Eastern Sections as operation would not involve sub-surface excavations.</p>	<p><i>Seismic and Geologic Hazards</i></p> <p><i>Construction.</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects in the Eastern Section due to construction in areas within seismic zones and areas geologically ill-suited (e.g., prone to landslides, underlain by expansive soils, etc.) to railroad infrastructure.</p> <p><i>Operation.</i> Negligible effects in Western Section as no additional infrastructure proposed. Potentially moderate effects in the Eastern Section due to the proposed route alternative traversing a seismically active region.</p> <p><i>Paleontological Resources</i></p> <p><i>Construction.</i> Negligible effects in Western Section as no construction activities required. Substantial effects in the Eastern Section due to excavation within paleontologically sensitive areas.</p> <p><i>Operation.</i> Negligible effects as operation in the Western and Eastern Sections would not involve sub-surface excavations.</p> <p><i>Mineral Resources</i></p> <p><i>Construction.</i> Negligible effects in Western Section as no construction activities required. Substantial effects in the Eastern Section as land designated for mineral resource extraction could be converted to transportation use.</p>

Environmental Topic	No Build Alternative	Build Alternative Option 1	Build Alternative Option 2	Build Alternative Option 3
				<i>Operation.</i> Negligible effects in the Western and Eastern Sections as operation would not involve sub-surface excavations.
Hazards and Hazardous Materials	Because no physical changes would occur, no effects on hazards or hazardous materials are anticipated under the No Build Alternative.	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects in the Eastern Section due to construction in areas located in proximity to hazardous materials sites, fire hazard severity zones, and airport influence areas.</p> <p><i>Operation:</i> Negligible effects in both the Western and Eastern Sections as any operational use/transport of hazardous materials would be in compliance with state and federal law.</p> <p><i>Number of Hazardous Materials Regulatory Database Listings:</i> 2,282</p> <p><i>Fire Hazard Severity Zones:</i> 4,048.7 acres</p> <p><i>Airports/Airport Influence Areas:</i> 8</p> <p><i>Schools within 0.25 mile:</i> 26</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects in the Eastern Section due to construction in areas located in proximity to hazardous materials sites, fire hazard severity zones, and airport influence areas.</p> <p><i>Operation:</i> Negligible effects in both the Western and Eastern Sections as any operational use/transport of hazardous materials would be in compliance with state and federal law.</p> <p><i>Number of Hazardous Materials Regulatory Database Listings:</i> 2,203</p> <p><i>Fire Hazard Severity Zones:</i> 4,048.7 acres</p> <p><i>Airports/Airport Influence Areas:</i> 7</p> <p><i>Schools within 0.25 mile:</i> 23</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects in the Eastern Section due to construction in areas located in proximity to hazardous materials sites, fire hazard severity zones, and airport influence areas.</p> <p><i>Operation:</i> Negligible effects in both the Western and Eastern Sections as any operational use/transport of hazardous materials would be in compliance with state and federal law.</p> <p><i>Number of Hazardous Materials Regulatory Database Listings:</i> 2,203</p> <p><i>Fire Hazard Severity Zones:</i> 4,048.7 acres</p> <p><i>Airports/Airport Influence Areas:</i> 7</p> <p><i>Schools within 0.25 mile:</i> 23</p>
Public Utilities and Energy	<p>Because no physical changes would occur, no effects on public utilities or solid waste facilities are anticipated under the No Build Alternative.</p> <p>However, projected future growth in the Program Corridor would result in a corresponding increase in traffic and VMT as more cars would be on the roadways. Therefore, traffic congestion is likely to worsen with the No Build Alternative, resulting in air quality effects. Similarly, with the continued trend in increases of VMT within the Program Corridor, energy consumption would likely increase under the No Build Alternative.</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects in the Eastern Section due to conflicts with existing utility infrastructure during construction. Potentially moderate effects pertaining to water and energy use during construction in the Eastern Section as construction of the Program would require consumption of available resources; however, existing supplies would be sufficient.</p> <p><i>Operation:</i> Negligible effects in Western Section as existing tracks would be utilized and maintenance conducted within the existing ROW. Potentially moderate effects in the Eastern Section due to increased demand for water, energy, wastewater treatment, and solid waste disposal.</p> <p><i>Electric transmission lines:</i> 180</p> <p><i>Natural gas pipelines:</i> 6</p> <p><i>Oil/petroleum product pipelines:</i> 7</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects in the Eastern Section due to conflicts with existing utility infrastructure during construction. Potentially moderate effects pertaining to water and energy use during construction in the Eastern Section as construction of the Program would require consumption of available resources; however, existing supplies would be sufficient.</p> <p><i>Operation:</i> Negligible effects in Western Section as existing tracks would be utilized and maintenance conducted within the existing ROW. Potentially moderate effects in the Eastern Section due to increased demand for water, energy, wastewater treatment, and solid waste disposal.</p> <p><i>Electric transmission lines:</i> 174</p> <p><i>Natural gas pipelines:</i> 6</p> <p><i>Oil/petroleum product pipelines:</i> 7</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects in the Eastern Section due to conflicts with existing utility infrastructure during construction. Potentially moderate effects pertaining to water and energy use during construction in the Eastern Section as construction of the Program would require consumption of available resources; however, existing supplies would be sufficient.</p> <p><i>Operation:</i> Negligible effects in Western Section as existing tracks would be utilized and maintenance conducted within the existing ROW. Potentially moderate effects in the Eastern Section due to increased demand for water, energy, wastewater treatment, and solid waste disposal.</p> <p><i>Electric transmission lines:</i> 174</p> <p><i>Natural gas pipelines:</i> 6</p> <p><i>Oil/petroleum product pipelines:</i> 7</p>

Environmental Topic	No Build Alternative	Build Alternative Option 1	Build Alternative Option 2	Build Alternative Option 3
		<p><i>Canals/aqueducts: 1</i></p> <p><i>Landfills in proximity: 27</i></p>	<p><i>Canals/aqueducts: 1</i></p> <p><i>Landfills in proximity: 27</i></p>	<p><i>Canals/aqueducts: 1</i></p> <p><i>Landfills in proximity: 27</i></p>
Cultural Resources	<p>Because no physical changes would occur, no effects on cultural resources are anticipated under the No Build Alternative.</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Substantial effects in the Eastern Section as construction activities could result in damage and disturbance of cultural resources, including previously unknown buried cultural resources and/or human remains.</p> <p><i>Operation:</i> Negligible effects in both the Western and Eastern Sections as operational activities would be predominantly located in the railroad ROW with low probability of damaging cultural resources and/or human remains.</p> <p><i>Number of Known Cultural Resources: 384</i> (117 archaeological sites and 267 built environment resources). Of these 384 known cultural resources, 1 resource is a listed NRHP property, 41 resources are potentially eligible for NRHP or CRHR listing, and 188 resources have not been evaluated for NRHP or CRHR eligibility.</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Substantial effects in the Eastern Section as construction activities could result in damage and disturbance of cultural resources, including previously unknown buried cultural resources and/or human remains.</p> <p><i>Operation:</i> Negligible effects in both the Western and Eastern Sections as operational activities would be predominantly located in the railroad ROW with low probability of damaging cultural resources and/or human remains.</p> <p><i>Number of Known Cultural Resources: 361</i> (112 archaeological sites and 249 built environment resources). Of these 361 known cultural resources, 1 resource is a listed NRHP property, 36 resources are potentially eligible for NRHP or CRHR listing, and 171 resources have not been evaluated for NRHP or CRHR eligibility.</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Substantial effects in the Eastern Section as construction activities could result in damage and disturbance of cultural resources, including previously unknown buried cultural resources and/or human remains.</p> <p><i>Operation:</i> Negligible effects in both the Western and Eastern Sections as operational activities would be predominantly located in the railroad ROW with low probability of damaging cultural resources and/or human remains.</p> <p><i>Number of Known Cultural Resources: 361</i> (112 archaeological sites and 249 built environment resources). Of these 361 known cultural resources, 1 resource is a listed NRHP property, 36 resources are potentially eligible for NRHP or CRHR listing, and 171 resources have not been evaluated for NRHP or CRHR eligibility.</p>

Environmental Topic	No Build Alternative	Build Alternative Option 1	Build Alternative Option 2	Build Alternative Option 3
<p>Parklands and Community Services</p>	<p>Because no physical changes would occur, no effects on parklands or community services are anticipated under the No Build Alternative.</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Moderate effects in Eastern Section could result on existing parklands and community facilities if the resources are near where an infrastructure improvement or station is being constructed and/or if parklands would be acquired and demolished to construct the proposed improvements.</p> <p><i>Operation:</i> Negligible effects in Western Section as operation would occur within an existing railroad ROW. Potentially moderate effects in the Eastern Section as new station areas could encourage transit-oriented development and associated increases in population and, in turn, increases in the use of existing parks and community facilities; however, operation of the new railroad infrastructure and stations would not be anticipated to require new or physically altered parklands and community facilities.</p> <p><i>Park/trail:</i> 27</p> <p><i>Place of worship:</i> 90</p> <p><i>Educational facility:</i> 27</p> <p><i>Healthcare facility:</i> 8</p> <p><i>Fire protection facility:</i> 9</p> <p><i>Law enforcement facility:</i> 6</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Moderate effects in Eastern Section could result on existing parklands and community facilities if the resources are near where an infrastructure improvement or station is being constructed and/or if parklands would be acquired and demolished to construct the proposed improvements.</p> <p><i>Operation:</i> Negligible effects in Western Section as operation would occur within an existing railroad ROW. Potentially moderate effects in the Eastern Section as new station areas could encourage transit-oriented development and associated increases in population and, in turn, increases in the use of existing parks and community facilities; however, operation of the new railroad infrastructure and stations would not be anticipated to require new or physically altered parklands and community facilities.</p> <p><i>Park/trail:</i> 25</p> <p><i>Place of worship:</i> 85</p> <p><i>Educational facility:</i> 23</p> <p><i>Healthcare facility:</i> 6</p> <p><i>Fire protection facility:</i> 9</p> <p><i>Law enforcement facility:</i> 6</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Moderate effects in Eastern Section could result on existing parklands and community facilities if the resources are near where an infrastructure improvement or station is being constructed and/or if parklands would be acquired and demolished to construct the proposed improvements.</p> <p><i>Operation:</i> Negligible effects in Western Section as operation would occur within an existing railroad ROW. Potentially moderate effects in the Eastern Section as new station areas could encourage transit-oriented development and associated increases in population and, in turn, increases in the use of existing parks and community facilities; however, operation of the new railroad infrastructure and stations would not be anticipated to require new or physically altered parklands and community facilities.</p> <p><i>Park/trail:</i> 25</p> <p><i>Place of worship:</i> 85</p> <p><i>Educational facility:</i> 23</p> <p><i>Healthcare facility:</i> 6</p> <p><i>Fire protection facility:</i> 9</p> <p><i>Law enforcement facility:</i> 6</p>

Environmental Topic	No Build Alternative	Build Alternative Option 1	Build Alternative Option 2	Build Alternative Option 3
Safety and Security	Because no physical changes would occur, no effects on safety and security are anticipated under the No Build Alternative.	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Potentially moderate in the Eastern Section effects associated with construction as temporary closure of lanes, sidewalks, bicycle lanes and routes, driveways, streets, and freeway lanes could result in safety hazards during construction.</p> <p><i>Operation:</i> Negligible effects in the Western Section as the addition of two daily round trips would not change the existing safety and security protocols for passengers, transit employees, and the public in or near the existing passenger rail system or station facilities. Potentially moderate effects in the Eastern Section due to implementation of new infrastructure requiring new rail safety equipment and protocols.</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects in the Eastern Section associated with construction as temporary closure of lanes, sidewalks, bicycle lanes and routes, driveways, streets, and freeway lanes could result in safety hazards during construction.</p> <p><i>Operation:</i> Negligible effects in the Western Section as the addition of two daily round trips would not change the existing safety and security protocols for passengers, transit employees, and the public in or near the existing passenger rail system or station facilities. Potentially moderate effects in the Eastern Section due to implementation of new infrastructure requiring new rail safety equipment and protocols.</p>	<p><i>Construction:</i> Negligible effects in Western Section as no construction activities required. Potentially moderate effects in the Eastern Section associated with construction as temporary closure of lanes, sidewalks, bicycle lanes and routes, driveways, streets, and freeway lanes could result in safety hazards during construction.</p> <p><i>Operation:</i> Negligible effects in the Western Section as the addition of two daily round trips would not change the existing safety and security protocols for passengers, transit employees, and the public in or near the existing passenger rail system or station facilities. Potentially moderate effects in the Eastern Section due to implementation of new infrastructure requiring new rail safety equipment and protocols.</p>

Notes:

CRHR=California Register of Historical Resources; FTA=Federal Transit Administration; GHG=greenhouse gas; I=Interstate; NRHP=National Register of Historic Places; ROW=right-of-way; SR=State Route; VMT=vehicle miles traveled

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7.1 Preferred Alternative

During the Tier 1/Program scoping process, FRA, Caltrans, and RCTC conducted an interactive process to develop the Program Purpose and Need, as well as high-level goals and objectives (Chapter 2, Program Alternatives). The Program goals and objectives were then used to develop an evaluation framework, which served as the basis for the analysis of Program Corridor concepts and preliminary alternatives, as well as the identification of the preferred alternative. The key differentiating factors for this recommendation are summarized in Table 7-1. Chapter 3, Sections 3.2 through 3.17, describes the potential environmental consequences of the No Build Alternative and the Build Alternative Options.

As summarized in Table 7-1, the No Build Alternative does not meet the Purpose and Need. Specifically, the No Build Alternative would not divert highway trips within the Program Corridor, reduce congestion, increase access to employment and activity centers, or provide reliable travel times and a level of safety comparable to that offered by passenger rail travel. The No Build Alternative would not connect the urban, suburban, and rural areas between Los Angeles and Coachella with a high-capacity travel option, facilitate continued development of a multimodal transportation network, or provide mobility choices for existing and future needs.

In summary, considering the projected ridership, agency and public input, and potential environmental impacts associated with improving passenger rail within the Program Corridor, a passenger rail system from LAUS to Coachella (Build Alternative Option 1) is considered to be more cost efficient and better performing than a passenger rail system from LAUS to Indio (Build Alternative Option 2) or with limited third track infrastructure (Build Alternative Option 3), with similar potential impacts on the environment. FRA and Caltrans recommend Build Alternative Option 1 as the preferred alternative in the Draft Tier 1/Program EIS/EIR for purposes of NEPA.

7.2 Environmentally Superior Alternative

CEQA Guidelines Section 15126.6(e)(2) requires the selection of an environmentally superior alternative. Based on the evaluation presented in Table 7-1, the No Build Alternative would be the environmentally superior alternative because it would not result in any new construction-related effects or require new land acquisition that may be required for rail infrastructure. However, as further described below, the No Build Alternative does not offer potential long-term air quality, transportation, or economic benefits outlined in the Program's Purpose and Need.

CEQA Guidelines Section 15126.6(e)(2) also states that where the No Project (No Build) Alternative is considered the environmentally superior alternative, the EIR shall identify another environmentally

superior alternative. Accordingly, this Tier 1/Program EIS/EIR also considered the Build Alternative, which consists of three Build Alternative Options. While the Build Alternative Options would potentially affect environmental resources in the Program Corridor, various components of the Build Alternative Options would (individually and collectively) enhance safety and enable greater reliability for both passenger and freight rail traffic. Additionally, the Build Alternative Options would meet the following goals:

1. Provides travelers between the Los Angeles Basin and the Coachella Valley with a public transportation service that offers more convenient and competitive trip times, better station access, and more frequency than currently available public transportation services
2. Provides travelers between the Los Angeles Basin and the Coachella Valley with an alternative to driving that offers reliable travel schedules
3. Provides travelers between the Los Angeles Basin and the Coachella Valley with an affordable transportation service
4. Serves a range of trip purposes traveling between the Los Angeles Basin and the Coachella Valley, particularly including business, social, medical, leisure, and recreational trips
5. Improves regional travel opportunities between the Los Angeles Basin and the Coachella Valley for transit-dependent people
6. Serves the expected population growth in the Los Angeles Basin and the Coachella Valley
7. Does not preclude, by choice of alignment or technology, a possible future corridor expansion between the Coachella Valley and Phoenix

In addition, the Build Alternative Options are anticipated to contribute to improvements in regional air quality, as increased rail ridership would lead to fewer automotive VMT in the Program Corridor. While Build Alternative Options 2 and 3 could have less environmental impacts (due to a shorter rail route and fewer station facilities), Build Alternative Options 2 and 3 are anticipated to result in fewer reductions of VMT and GHG emissions than Build Alternative Option 1. In addition, at this Tier 1/Program EIS/EIR service-level evaluation, site-specific environmental impacts are not known and could be the same for all Build Alternative Options, depending on the location of the rail infrastructure improvements and station facilities. For purposes of this Tier 1/Program EIS/EIR, Build Alternative Option 1 has been identified as the environmentally superior alternative and recommended preferred alternative.

8 Public and Agency Outreach

This chapter documents the public and agency outreach conducted during preparation of the Tier 1/Program EIS/EIR evaluation for the Program in accordance with NEPA; CEQ regulations implementing NEPA; FRA's Procedures for Considering Environmental Impacts; 23 USC Section 139; and CEQA. RCTC began the public engagement process early in 2014 to ensure stakeholder feedback was incorporated into the scope of the environmental document, as well as analysis required to identify potential effects and determine appropriate mitigation strategies.

During the outreach process, the lead agencies, which include FRA, Caltrans, and RCTC, engaged the public (i.e., citizens, elected officials, and key stakeholders), as well as local, state, tribal, and federal agencies during the early stages of the Tier 1/Program EIS/EIR evaluation.

This chapter provides a summary of the outreach efforts, which included a variety of formal and informal outreach methods, such as public meetings, key stakeholder and community group briefings, project development team and agency coordination meetings, advertisements, email blasts, mailings, pamphlet distribution, website updates, and social media engagement. This chapter provides additional detail on the overall public involvement process and the aforementioned outreach activities beginning with the formal scoping period and additional outreach conducted throughout preparation of the Tier 1/Program EIS/EIR environmental process.

8.1 Environmental Justice Outreach

In the development and implementation of the public involvement efforts for the Program, EJ issues and affected communities were identified. According to California Government Code Section 65040.12(e), EJ is described as "the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies." EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires consideration of whether a proposed action would disproportionately affect minority or low-income groups (59 FR 7629 [1994]). Additionally, EO 12898 requires federal agencies to ensure public participation from communities with substantial minority or low-income populations. Each federal agency has developed a strategy to address EJ with CEQ responsible for oversight and coordination. The EJ evaluation for the Tier 1/Program EIS/EIR follows the appropriate guidance and methodologies to examine the potential effects on minority and low-income groups (e.g., CEQ's EJ Guidelines under NEPA [December 1997], and the USDOT's Final Order 5610.2(a) on EJ [April 1997 and updated May 2012]).

An EJ evaluation was prepared for the Program to identify and address potential disproportionate effects on EJ populations and to ensure that EJ populations were included in public outreach efforts throughout the life of the Program (during and after the NEPA process).

FRA, Caltrans, and RCTC were also responsible for complying with Title VI of the Civil Rights Act of 1964, which states that “no person in the United States shall on the ground of race, color, or national origin be excluded from participation in, denied benefits of, or subjected to discrimination under any program or activity receiving federal financial assistance.” Recipients of federal aid must certify non-discrimination on the basis of race, color, or national origin.

The EJ evaluation in the Tier 1/Program EIS/EIR identified low-income and minority populations in the Tier 1/Program EIS/EIR Study Area. These EJ communities identified within the Tier 1/Program EIS/EIR Study Area were included in the public outreach process to ensure that they can participate meaningfully in review of the Program. As a general rule, the following principles were adopted to support involvement of EJ communities in the Tier 1/Program EIS/EIR Study Area:

- Documents, notices, and meetings were made concise, understandable, and readily accessible to the public
- Informational materials were made available through a variety of outlets
- All public events were scheduled at convenient and accessible locations and times
- Various community leaders and groups were contacted to increase public participation of constituent communities

8.1.1 Limited English Proficiency Outreach

Individuals who do not speak English as their primary language and who have a limited ability to read, speak, write, or understand English are considered limited English proficient. Limited English proficient populations are protected by federal laws concerning language access rights, including Title VI of the Civil Rights Act of 1964 and EO 13166, *Improving Access to Services for Persons with Limited English Proficiency* (signed on August 11, 2000). EO 13166 states that limited English proficient people should have meaningful access to federally conducted and funded programs and activities. EO 13166 requires federal agencies to examine the services they provide, identify any need for services to those with limited English proficiency, and develop and implement a system to provide those services so limited English proficient persons can have meaningful access to them.

Steps were taken by FRA, RCTC, and Caltrans to provide meaningful access to those limited English proficient individuals expected to be most regularly encountered by providing, as necessary, translation services at public meetings and meeting notifications and materials advertised in English and Spanish.

8.1.2 Americans with Disabilities Act Compliance

Public meetings were held in locations that comply with the Americans with Disabilities Act to assure that disabled or elderly stakeholders had convenient access to meetings. Sign language interpreters were available upon request at formal public meetings and other meetings, as advertised in meeting notification materials. Public notices announcing public meetings provided additional instructions for requesting other special accommodations. Additionally, this document complies with Section 508 requirements (29 USC Section 794 (d)), which requires federal electronic and information technology to be accessible to people with disabilities, including employees and members of the public.

8.2 Section 106 Consultation

FRA determined its federal action to provide financial assistance for the development of this Tier 1/Program EIS/EIR is an “undertaking,” as defined in Section 106 of the NHPA, and its implementing regulations (36 CFR Part 800); however, this planning effort does not have the potential to affect historic properties. In making this determination, FRA has no further obligations under Section 106 with respect to this undertaking (i.e., Tier 1/Program EIS/EIR). The approach followed for Section 106 consultation is discussed below and in Section 3.13, Cultural Resources.

8.2.1 National Historic Preservation Act, Section 106

FRA, Caltrans, and RCTC are using a tiered NEPA process (e.g., Tier 1/Program EIS/EIR) to complete the environmental review of the Program, pursuant to 40 CFR Part 1508.28 (titled “Tiering”) and CEQA Guidelines Section 15168 (titled “Program EIR”) and Section 15170 (titled “Joint EIS/EIR”). Tiering is a staged environmental review process applied to complex transportation projects. The Tier 1/Program EIS/EIR and the concurrent preparation of the SDP, are the first steps in this tiered environmental review process. After the completion of the SDP, the proposed broader Program scope defining necessary infrastructure improvements will be known.

Once funding is secured for further work, the Tier 1/Program EIS/EIR and SDP would be followed by Tier 2/Project-level analysis for site-specific infrastructure improvements and station facilities. This would be considered the second tier of environmental evaluation because it is based on the Tier 1/Program EIS/EIR that outlined the broad Program scope. This future Tier 2/Project-level analysis would closely align with the future preliminary engineering process and analyze site-specific direct and indirect Project-level impacts, in addition to any required permits, consultations, or approvals needed for construction. If any Tier 2/Project-level analysis is sponsored by a federal agency, it would be subject to all relevant federal environmental laws and regulations, and the Tier 2/Project-level environmental documents would be led by the sponsoring federal agency.

Construction of the proposed rail infrastructure or station facility would not commence until after environmental clearance is completed at the Tier 2/Project level.

Similarly, the Section 106 implementing regulations allow agencies to use a phased process to comply with Section 106 in coordination with NEPA, per 36 CFR Part 800.8(c)(1)(ii). Section 106 of the NHPA (36 CFR Part 800) requires federal agencies to take into account the effects of their undertakings on historic properties that are listed or meet the eligibility criteria for listing in the NRHP. The Section 106 process has a specific public involvement component. In particular, Section 106 regulations require that the lead federal agency (FRA), in consultation with the SHPO, identify appropriate points for seeking public input and notification of the proposed actions associated with the Program. The regulations require that the federal agency seek and consider the views of the SHPO and the public in a manner that reflects the nature and complexity of the Program and its effects on historic properties.

At this time, FRA is funding the Tier 1/Program EIS/EIR planning phase only and has determined the planning effort does not have the potential to affect historic properties. However, to inform this planning effort and facilitate potential future Section 106 reviews under Tier 2/Project-level analysis, FRA initiated consultation under 36 CFR Part 800.3 and conducted a preliminary identification of historic properties that included background research/data obtained from records search and other sources, such as historical maps; it does not include data collected through archaeological or built environment surveys, nor does it include resource evaluations. The study completed in support of the Tier1/Program EIS/EIR incorporates pertinent information received through consultation on historic properties, including information regarding federal, state, and local agencies and tribes consulted and their responses, if any. The following agencies/jurisdictions requested to be consulting parties, pursuant to Section 106 of the NHPA (Section 3.13, Cultural Resources, of the Tier 1/Program EIS/EIR):

- SHPO
- City of Desert Springs
- City of Indio

8.2.2 Tribal Consultation

Federal Government-to-Government Section 106 Tribal Consultation

As part of the Tier 1/Program EIS/EIR scoping process, FRA identified potential consulting parties for Section 106, which included federal agencies, state agencies, local agencies, and federally and state-recognized Native American tribes that have cultural and traditional affiliation within or near the Eastern Section of the Tier 1/Program EIS/EIR Cultural Study Area.

On October 15, 2019, FRA sent invitation letters to consult with federally recognized tribes regarding the Program. On November 5, 2019, an email follow-up was sent by HDR (on behalf of FRA) to those mailing recipients whose letters were returned undeliverable. On November 22 and 26, 2019, additional email follow-ups were sent to all federally recognized tribes who had not yet responded to the invitation to consult. On December 20, 2019, a final follow-up email was sent to all federally recognized tribes who had not yet responded, using the original October 15, 2019, letter as an attachment. For any Native American tribe where an email was either unavailable or undeliverable, a follow-up phone call was made and voice mail messages were left regarding the Program. The following responses have been received:

- The Agua Caliente Band of Cahuilla Indians of the Agua Caliente Indian Reservation requested government-to-government consultation, contact of their office to schedule a meeting, area of potential effects shape files (via email), and copies of cultural resource documentation generated.
- The La Posta Band of Diegueno Mission Indians of the La Posta Reservation did not request to be a consulting party but provided a recommendation (via email) that if there is ground disturbance, a native monitor should be on site because “the native people traveled along that way so there may [be] artifacts in the area.”
- The Morongo Band of Cahuilla Mission Indians Tribal Heritage Preservation Officer has verbally discussed participating in Section 106 consultation with FRA.
- The Pala Band of Mission Indians responded that the Program is not within the boundaries of the recognized Pala Indian Reservation and beyond the boundaries of the territory that the Pala Band of Mission Indians considers its Traditional Use Area.
- The San Manuel Band of Mission Indians responded that they do not elect to be a consulting party on this Tier 1/Program and will wait for Tier 2/Project-level notifications.
- The Soboba Band of Luiseno Indians requested government-to-government consultation, scheduling conference calls, scheduling in-person consultation meetings, the presence of a

Soboba Native American Monitor during all ground-disturbing activities (including archaeological surveys and testing), that procedures regarding repatriation of cultural items are followed, the appropriate treatment and disposition of human remains, coordination with County Coroner's Office, and non-disclosure of reburial locations. The Soboba Band of Luiseno Indians Tribal Heritage Preservation Officer also submitted a letter notifying FRA of a potentially eligible Traditional Cultural Property for the NRHP and CRHR.

A webinar for the Agua Caliente Band of Cahuilla Indians of the Agua Caliente Indian Reservation was held on February 13, 2020. A webinar for the Soboba Band of Luiseno Indians was held on February 11, 2020. All Section 106 correspondence received to date is located in Appendix H of this Tier 1/Program EIS/EIR.

Section 106 Consultation with State-Recognized Tribes

In response to FRA's invitations to consult, the Gabrieleño Band of Mission Indians – Kizh Nation replied on January 16, 2020, with a requested to consult under Section 106. The tribe requested a meeting with FRA. On January 23, 2020, HDR reached out to Chairman Andrew Salas on behalf of FRA to discuss setting up a meeting. After their discussion, Chairman Salas noted that there was no need to meet at this time to further discuss the Program; however, the Gabrieleño Band of Mission Indians – Kizh Nation requested to be involved and informed of related Tier 2/Project-level notifications moving forward.

8.2.3 Assembly Bill 52 Tribal Consultation

In 2014, California governor Jerry Brown signed AB 52, establishing an additional requirement under CEQA for consultation with Native American tribes regarding TCRs. AB 52 requires that the CEQA lead agency notify any interested Native American tribes of a proposed project only if those tribes have requested to be notified regarding the CEQA lead agency's projects. The CEQA lead agency must consult in good faith with participating California Native American tribes prior to the release of the EIR. If a project has the potential to affect a TCR, the CEQA document must discuss whether there is a significant impact on a TCR and whether there are feasible alternatives or mitigation to avoid or substantially lessen impacts on the TCR. Consultation is finished when one of the following applies: the parties agree to avoid or mitigate significant impacts on TCRs or the CEQA lead agency, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.

RCTC notified two Native American tribes regarding the Program. RCTC's consultation efforts under AB 52 are described as follows:

- **Gabrieleño Band of Mission Indians Kizh Nation:** On October 19, 2016, during the scoping phase of the Program, RCTC submitted an invitation to consult under AB 52 to the Gabrieleño Band of Mission Indians - Kizh Nation. On October 30, 2016, the Gabrielino Gabrieleño Band of Mission Indians - Kizh Nation replied that they have concerns for cultural resources within ancestral territory that fall within the Program, and they would like to consult with RCTC. On August 29, 2019, RCTC sent further information to the tribe, including an updated Program description and background research conducted regarding known archaeological resources within the Tier 1/Program EIS/EIR Cultural Study Area. Since the Western Section of the Program, located largely within the Gabrieleño Band of Mission Indians - Kizh Nation ancestral territory, did not propose any ground-disturbing activities, RCTC asked that the Native American tribe reconfirm their request to consult under AB 52 for the Program. On September 30, 2019, RCTC followed up with the Gabrieleño Band of Mission Indians - Kizh Nation via email, asking that the Native American tribe confirm their intentions to consult on the Program prior to October 4, 2019. No response has been received from the Gabrieleño Band of Mission Indians - Kizh Nation for AB 52 consultation.
- **San Manuel Band of Mission Indians:** On August 29, 2019, RCTC submitted an invitation to consult under AB 52 to the San Manuel Band of Mission Indians. The San Manuel Band of Mission Indians replied on September 11, 2019, that while the majority of the Program exists outside of Serrano ancestral territory, the tribe did have concerns regarding the portion of the Program from Colton to Beaumont and Banning within the Eastern Section of the Tier 1/Program EIS/EIR Cultural Study Area. The San Manuel Band of Mission Indians noted that there are at least two Sacred Lands Files within or adjacent to the Eastern Section of the Tier 1/Program EIS/EIR Cultural Study Area in the Loma Linda/Redlands/Colton area that are of concern to the Native American tribe; the tribe requested further information to assess their level of involvement with the Program. On September 30, 2019, the tribe was sent a copy of the *Cultural, Historic, and Tribal Resources Technical Memorandum* (Appendix H of this Tier 1/Program EIS/EIR) prepared for the Tier 1/Program EIS/EIR service-level evaluation for review. With the additional information, the Native American tribe noted that they did not have concerns with the Tier 1/Program EIS/EIR, and the Native American tribe will wait until Tier 2/Project-level notifications to discuss specific activities that may impact resources of concern to the San Manuel Band of Mission Indians.

RCTC has completed AB 52 Tribal consultation for the Tier 1/Program EIS/EIR evaluation. Additional AB 52 Tribal consultation will be conducted as part of Tier 2/Project-level analysis.

8.3 Outreach Prior to Scoping

RCTC began public outreach for the Program in 2014, prior to the formal initiation of the NEPA/CEQA process. The early outreach included multiple Technical Advisory Committee meetings, public outreach meetings, and individual meetings with elected officials within the Coachella Valley. These early outreach activities are summarized in Table 8-1.

Table 8-1. Summary of Pre-NEPA/CEQA Public Outreach

Meeting Date	Location	Number of Attendees	Meeting Topic
Technical Advisory Committee Meetings			
November 19, 2014	In-person and via webcast at SCAG offices in Riverside, Los Angeles and Orange Counties; Coachella Valley Association of Governments offices; conference call option also provided	31	Project introduction and overview, study vision, understanding of partners, FRA process, public outreach plan, travel market
February 25, 2015	In-person and via webcast at SCAG offices in Riverside, Los Angeles and Orange Counties; Coachella Valley Association of Governments offices; conference call option also provided	37	Study status update, Draft Purpose and Need, concept alternatives, public meeting update
November 4, 2015	In-person and via webcast at SCAG offices in Riverside, Los Angeles and Orange Counties; Coachella Valley Association of Governments offices; conference call option also provided	28	Route alternatives studied, evaluation process, coarse level and fine level screening criteria and results, discussion of preferred alternative and No Build Alternative
May 4, 2021	Virtually via Zoom meeting	43	SDP and Tier 1/Program EIS/EIR overview and status.

Meeting Date	Location	Number of Attendees	Meeting Topic
Public Outreach Meetings			
February 23, 2015	Banning City Hall	22	Project overview; sought feedback about rail-service expansion and Draft Purpose and Need
February 26, 2015	Coachella Valley Association of Governments, Palm Desert	75 in-person attendees 56 webcast attendees 98 additional webcast views after the meeting	Project overview; sought feedback about rail-service expansion and Draft Purpose and Need
Online Survey (Southern California Region)			
March–July 2015	Online survey	262 responses	Travel patterns, public transit usage, travel barriers, and traffic congestion
Elected Officials Briefings (Riverside County)			
February–March 2015	One-on-one briefings with Riverside County Elected Officials	20 participants	Project overview; sought feedback about rail-service expansion and Draft Purpose and Need

Notes:

EIR=environmental impact report; EIS=environmental impact statement; FRA=Federal Railroad Administration; SCAG=Southern California Association of Governments; SDP=Service Development Plan

8.4 Public and Agency Scoping

The scoping process undertaken for the Program was performed in accordance with NEPA; CEQ regulations implementing NEPA; FRA’s Procedures for Considering Environmental Impacts; 23 USC Section 139; and CEQA.

During the scoping process, the lead agencies engaged the public (i.e., citizens, elected officials, and key stakeholders), as well as local, state, and federal agencies during the early stages of the Tier 1/Program EIS/EIR. The NEPA/CEQA scoping process provides government agencies, public and private organizations, and the general public the opportunity to identify environmental issues and alternatives for consideration in the Tier 1/Program EIS/EIR. The scoping process and results are an initial step in the NEPA/CEQA process.

Information developed by the lead agencies, as well as comments received from the public and other stakeholders during the scoping process were used to:

- Refine the Purpose and Need for the Program;
- Provide input on alignments or alternatives that should be considered in the Tier 1/Program EIS/EIR; and
- Identify potential environmental effects of the Program to be addressed in the Tier 1/Program EIS/EIR.

8.4.1 Notice of Intent, Notice of Preparation, and Public Information Materials

FRA published an NOI to prepare an EIS for the Program in the FR on October 11, 2016 (FR 81 (196), 70257-70260). The NOI serves as the official legal notice that a federal agency is commencing preparation of an EIS. As described in the NOI, the formal scoping period ended on November 10, 2016.

As required by CEQA Guidelines Section 15082 (14 CCR 15000 et seq.), RCTC issued an NOP on October 6, 2016 (State Clearinghouse Number 2016101017). The NOP summarized the Program, provided information on RCTC’s intention to prepare a joint Tier 1/Program EIS/EIR, and requested comments from interested parties. The formal scoping period for the NOP ended on November 10, 2016, instead of November 5, 2016 (as indicated in the scoping meeting notices and scoping meeting materials), to coincide with the dates in the NOI published in the FR.

The NOI and NOP provided background information on the Program, presented draft Program purpose and objectives, addressed the alternatives development process, and provided an initial list of environmental resources to be analyzed. The NOI and NOP also announced the public scoping meetings (Section 8.4.3) and invited local, state, and federal agencies; the public; and other interested parties to submit scoping comments.

8.4.2 Agency and Public Outreach

A number of agencies were contacted on release of the NOI and NOP. Table 8-2 identifies the agencies that responded to the NOI and NOP.

Table 8-2. Agency Points of Contact

Agency	Point of Contact	Title
California Department of Transportation (Caltrans), District 8	Mark Roberts	Office Chief, Intergovernmental Review, Community, and Regional Planning
California Department of Fish and Wildlife (CDFW)	Leslie MacNair	Regional Manager
City of Coachella	Steven Hernandez	Mayor
City of Indio	Mariano Aguirre	Director of Housing and Development
City of Palm Desert	Ryan Stendell	Director of Community Development
Los Angeles County Metropolitan Transportation Authority (Metro)	Elizabeth Carvajal	Senior Manager, Transportation Planning
National Park Service	Jill Jensen	Cultural Resource Specialist
Southern California Association of Governments (SCAG)	Ping Chang	Acting Manager, Compliance and Performance Monitoring
South Coast Air Quality Management District (SCAQMD)	Jillian Wong	Planning and Rules Manager
Southern California Regional Rail Authority (SCRRA/Metrolink)	Ron Mathieu	Senior Public Project Specialist
United States Environmental Protection Agency (U.S. EPA), Region IX	Clifton Meek	Environmental Review Section

Agency	Point of Contact	Title
United States Fish and Wildlife Service (USFWS)	Kennon Corey	Assistant Field Supervisor

Along with the agencies, members of the public, including citizens, elected officials, and other key stakeholders (i.e., community associations, local institutions, and Tier 1/Program EIS/EIR-adjacent property owners), participated in the NEPA and CEQA scoping process. Consultation with these parties continued throughout the Tier 1/Program EIS/EIR environmental process at various milestones. In addition to the publication of the NOI and NOP, a range of outreach methods and activities outlined below were implemented to engage the members of the public.

Website

The NOI/NOP, press release, and information related to public scoping meeting locations and times were made available to the public on RCTC's website for the Program:

<https://www.rctc.org/projects/coachella-valley-san-gorgonio-pass-corridor-rail-corridor-service-project/>.

Social Media

On October 7, October 10, and October 11, 2016, RCTC's Twitter and Facebook accounts included posts with information for the public scoping meeting dates and times and a link to the Program website (Appendix A of this Tier 1/Program EIS/EIR). RCTC has approximately 900 Twitter followers and 8,000 Facebook followers. Posts were made to inform the public on how to submit comments. A link to the Program fact sheet was made available via RCTC's Facebook account. RCTC's Facebook and Twitter accounts can be found at www.facebook.com/cvrailproject and @therctc, respectively. RCTC also established a separate Program-specific Facebook account that has approximately 694 followers. RCTC posted public scoping meeting dates and times, as well as boosted the posts to reach a wider audience in areas surrounding the public scoping meeting locations. The Coachella Valley Rail Program Facebook account can be found at www.facebook.com/cvrailproject.

Mailing List

In addition to the release of the NOP and NOI, notifications were sent via email and postal mail to approximately 570 persons on the public outreach distribution list. As identified in the Agency and Public Coordination Plan, the distribution list was developed by taking into account early outreach efforts, such as the Technical Advisory Committee meetings, public outreach meetings, and stakeholders within the Coachella Valley area and along the Program Corridor. The distribution list included elected officials, stakeholders, community groups, and members of the public with an

interest in the Program. The distribution list was updated and expanded as needed throughout the duration of the Tier 1/Program EIS/EIR, with updated versions provided to the team at periodic intervals. An additional 23 certified mailings containing the NOP were sent to federal, state, and local agencies and organizations with an interest in the Program. Notifications also included a description of the Program, the NEPA/CEQA process, and instructions for submitting public comments or requesting special accommodations.

Newspaper Advertisements and Press Releases

RCTC advertised the public scoping meetings and comment period in the following newspapers:

- The Press-Enterprise published on October 6, 2016 – circulation in Riverside and San Bernardino Counties
- Los Angeles Times published on October 6, 2016 – circulation in Southern California
- The Desert Sun published on October 6, 2016 – circulation in Coachella Valley
- La Opinion (Spanish) published on October 6, 2016 – circulation in Southern California
- El Informador del Valle (Spanish) published on October 6, 2016 – circulation in Coachella Valley
- La Prensa (Spanish) published on October 7, 2016 – circulation in Riverside, San Bernardino and East Los Angeles Counties
- Excelsior (Spanish) published on October 7, 2016 – circulation in Orange County
- La Prensa Hispana (Spanish) published on October 7, 2016 – circulation in Coachella Valley, eastern portion of Riverside County, eastern portion of San Bernardino County, and Imperial County

The advertisements invited the public to attend the public scoping meetings, provided information regarding the meeting times and places, the meeting format, the 30-day public scoping period, the publication of the NOI and NOP, Program website address, and instructions for submitting public comments or requesting special accommodations.

Additionally, RCTC issued an electronic press release on October 11, 2016 inviting the public to attend the public scoping meeting, providing meeting times and places, information regarding the public scoping period, and instructions for submitting public comments or requesting special accommodations. SCAG and the City of Indio also posted the press release on their respective websites. The NOP and an associated press release were also made available to the public on RCTC's website for the Program: www.rctc.org/coachella.

8.4.3 Public Scoping Meetings

During the NOI/NOP comment period, FRA and RCTC conducted three public scoping meetings as summarized in Table 8-3.

Table 8-3. Public Scoping Meetings

Meeting Date	Location	Time	Number of Attendees
October 12, 2016	Springbrook Clubhouse at Reid Park 1101 North Orange Street Riverside, California 92501	5:00 p.m. – 7:00 p.m.	8
October 13, 2016	Indio Senior Center 45700 Aladdin Street Indio, California 92201	5:00 p.m. – 7:00 p.m.	17
October 17, 2016	Metro Headquarters 1 Gateway Plaza Los Angeles California 90012	5:00 p.m. – 7:00 p.m.	14

The public scoping meetings helped to notify stakeholders about the public comment period for the CEQA NOP (October 6, 2016 through November 10, 2016) and the NEPA NOI (October 11, 2016 through November 10, 2016). The primary goals for the public scoping meetings were to:

- Educate the public on the need for the Program;
- Share the history of the Program and how the Program has evolved;
- Outline the Program benefits;
- Highlight the Program elements;
- Present the Program timeline;
- Explain next steps; and
- Gather public comments per the requirements of CEQA and NEPA.

The public scoping meetings provided the public and government agencies the opportunity to receive information on the NEPA/CEQA process, the Program, and how to provide comments. Approximately 39 persons total attended the public scoping meetings in Los Angeles, Indio, and Riverside, including representatives from local and state agencies, organizations, and private citizens.

Copies of the NOI and NOP were available at the sign-in tables. To ensure that the multilingual needs of the community were met, the Program fact sheet was available in Spanish. In addition, team staff members were available to interpret the presentation in Spanish. Program fact sheets and comment cards were provided as handouts at the public scoping meetings.

Prior to and after the presentation, attendees were encouraged to visit the various stations, view the display boards, meet with the team, ask questions, and provide comments. Robert Yates, Multimodal Services Director for RCTC, gave the presentation with assistance from J.D. Douglas, project manager for HDR. Lyle Leitelt was also in attendance to represent FRA and answered questions from stakeholders.

Attendees were also encouraged to submit comments by mail: electronically to the Program email address or as written comments submitted at the meeting. Several attendees submitted written comments at the public scoping meeting using forms made available.

8.4.4 Agency and Public Scoping Comments

Federal, state, and local agencies; private and public organizations; and the general public provided written comments during the public scoping period. The comment period for the NOP and NOI ended November 10, 2016. In total, 36 submissions were received: 13 from federal, state, and local agencies; 23 from individuals of the public and other organizations, and 1 from a railroad stakeholder. Eight comments offered general support for the Program, of which five comments requested that the Program be expedited to allow for alternative modes of transportation in the Coachella Valley. One comment was supportive of the Program because it could reduce carbon emissions and bring safety benefits to the Coachella Valley during festival season. These comments are incorporated into the Tier 1/Program EIS/EIR. The total number of scoping comment submissions are summarized in Table 8-4.

Table 8-4. Total Number of Public Scoping Comment Submissions

Number Received	Source
13	<i>Agency Submissions</i>
1	Public comment cards from agencies
12	Letters and emails from agencies
23	<i>Public Submissions</i>
17	Emails submitted via CoachellaValleyRail@ArellanoAssociates.com
3	Letters mailed to FRA and RCTC

Number Received	Source
3	Coachella Valley Rail Project comment forms
1	<i>Railroad Stakeholder Submissions</i>
1	Letters from railroad stakeholders

Notes:

FRA=Federal Railroad Administration; RCTC=Riverside County Transportation Commission

Comments submitted during the public scoping process were taken into consideration by FRA, Caltrans, and RCTC throughout the development of the Draft Tier 1/Program EIS/EIR, including the public and agency involvement process, Purpose and Need statement, alternatives development, and environmental resources evaluation. Comments generally focused on the following topics:

- Program termini
- Station locations and station area development
- Service frequency
- Program alignments and alternatives
- Transit network connectivity
- Public engagement opportunities
- Property acquisition/ROW
- Mitigation of environmental impacts
- Freight interference

8.5 Tier 1/Program EIS/EIR

8.5.1 Outreach, Involvement, and Communications

Public outreach during the development of the Draft Tier 1/Program EIS/EIR includes the following methods:

- **Website** – The Program website includes an overview, Public Involvement Information, and when available, related studies and resources, including an electronic version of the Draft Tier 1/Program EIS/EIR. The website was updated with information on the Program alternatives, environmental review, and current and previous Program documentation and provided a link to allow people to sign up for the mailing list and submit comments electronically.
- **Mailing List** – RCTC developed an electronic and traditional mailing list of elected officials, public agency contacts, property owners adjacent to the Tier 1/Program EIS/EIR Study Area, stakeholders, and community groups, and members of the public with an interest in the Program. The mailing list was used to distribute meeting announcements and information about the Program. Where email addresses were available, announcements including Program information and public involvement opportunities were distributed electronically.
- **Local Government and Stakeholder Briefings** – Upon request or at key milestones, the lead agencies briefed local government entities and stakeholders to provide information, answer questions, and receive feedback.
- **Social Media Messaging** – RCTC's Twitter and Facebook accounts will include posts with information for the public meeting dates and times and a link to the Program website approaching the release of the Draft Tier 1/Program EIS/EIR for public review. Posts will also be made to inform the public on how to submit comments on the Draft Tier 1/Program EIS/EIR.

8.5.2 Agency Meetings and Consultation

A Technical Advisory Committee was convened consisting of technical staff representatives from the lead and participating agencies and other stakeholders. There have been seven Technical Advisory Committee meetings conducted since 2015, focused on specific technical topics, such as rail operations, conceptual alternatives development, NEPA/CEQA requirements, historic properties and Section 106, water resources, potential mitigation strategies, and advance permitting requirements.

8.6 Publication and Review of the Tier 1/Program EIS/EIR

8.6.1 Notification and Circulation of the Tier 1/Program EIS/EIR

The NOA of the Draft Tier 1/Program EIS/EIR will be published in the FR on May 21, 2021. The Notice of Completion (NOC) for the Draft Tier 1/Program EIS/EIR will be filed with the Los Angeles County Clerk’s Office, Orange County Clerk’s Office, San Bernardino County Clerk’s Office, Riverside County Clerk’s Office, State Clearinghouse, and sent to the mailing list. The NOC will also be distributed via an email blast, RCTC’s Home Page, and the following newspapers:

- The Desert Sun
- The Press-Enterprise
- Los Angeles Times
- Excelsior (Spanish)
- El Informador del Valle (Spanish)

Copies of the Draft Tier 1/Program EIS/EIR, including the NOC, will be mailed to each of the NEPA participating agencies (which also included responsible agencies as defined by CEQA). The public review period for the Draft Tier 1/Program EIS/EIR extends for 45 days from May 21, 2021 to July 6, 2021.

Repository Locations

Requests for hard copies of the Draft Tier 1/Program EIS/EIR with technical appendices may be sent to:

Riverside County Transportation Commission

Sheldon Peterson, Rail Manager

P.O. Box 12008

Riverside, California 92502-2208

or via email to cvrail@rctc.org

Hard copies of the Draft Tier 1/Program EIS/EIR Executive Summary and CD copies of the entire Draft Tier 1/Program EIS/EIR with accompanying technical appendices will also be available for public view at the following locations (subject to library location hours and COVID-19 procedures):

<p>Los Angeles Union Station/Metro Library and Archive One Gateway Plaza 15th Floor Los Angeles, California 90012</p> <p>(Hard copy of the Draft EIS/EIR and appendices available in English and hard copy of Executive Summary available in English and Spanish)</p>	<p>Fullerton Public Library 353 W Commonwealth Avenue Fullerton, California 92832</p> <p>(Hard copy of Executive Summary available in English and Spanish)</p>	<p>Arlington Library 9556 Magnolia Avenue Riverside, California 92503</p> <p>(Hard copy of Executive Summary available in English and Spanish)</p>
<p>Riverside County Transportation Commission 4080 Lemon Street Riverside, California 92501</p> <p>(Hard copy of the Draft EIS/EIR and appendices available in English and hard copy of Executive Summary available in English and Spanish)</p>	<p>Colton Public Library 656 N 9th Street Colton, California 92324</p> <p>(Hard copy of Executive Summary available in English and Spanish)</p>	<p>Loma Linda Branch Library 25581 Barton Road Loma Linda, California 92354</p> <p>(Hard copy of Executive Summary available in English and Spanish)</p>
<p>A.K. Smiley Public Library 125 W. Vine Street Redlands, California 92373</p> <p>(Hard copy of Executive Summary available in English and Spanish)</p>	<p>Beaumont Library 125 E. Eighth Street Beaumont, California 92223</p> <p>(Hard copy of Executive Summary available in English and Spanish)</p>	<p>Banning Public Library 21 W. Nicolet Street Banning, California 92220</p> <p>(Hard copy of Executive Summary available in English and Spanish)</p>
<p>Palm Springs Public Library 300 S. Sunrise Way Palm Springs, California 92262</p> <p>(Hard copy of Executive Summary available in English and Spanish)</p>	<p>Riverside County Indio Branch Library 200 Civic Center Mall Indio, California 92201</p> <p>(Hard copy of Executive Summary available in English and Spanish)</p>	<p>Riverside County Coachella Branch Library 1500 6th Street Coachella, California 92236</p> <p>(Hard copy of Executive Summary available in English and Spanish)</p>

In addition, the Draft Tier 1/Program EIS/EIR will be available for review on RCTC's website (<http://rctc.org/projects/coachella-valley-san-gorgonio-pass-corridor-rail-corridor-service-project/>) and FRA's website (<https://railroads.dot.gov/environment/environmental-reviews/coachella-valley-san-gorgonio-pass-corridor-investment-plan>), beginning May 21, 2021.

8.6.2 Providing Comments on the Tier 1/Program Draft EIS/EIR

Written comments on the content of the Draft Tier 1/Program EIS/EIR should be submitted no later than July 6, 2021. The document can be viewed at the websites noted above and <https://www.regulations.gov/docket/FRA-2021-0048>. Comments can be shared directly with FRA by visiting the regulations.gov link (above) or by searching regulations.gov for Docket Number (FRA-2021-0048). All electronic comments should be submitted via regulations.gov.

Written comments should be sent via U.S. mail to:

Federal Railroad Administration
Amanda Ciampolillo, Environmental Protection Specialist
1200 New Jersey Avenue SE
Washington, DC 20590

Comments should include “Coachella Valley – San Gorgonio Pass Rail Corridor Service Program – Draft Tier 1/Program EIS/EIR Comments” in the subject line and the name of a contact person in your organization, if applicable.

8.6.3 Public Information Meetings and Hearings

The purpose of the public hearings is to explain the Program and the Draft Tier 1/Program EIS/EIR evaluation. FRA, Caltrans, and RCTC have scheduled two public hearings as an important component of the NEPA and CEQA process. The virtual public hearings for the Program are scheduled as follows:

June 22, 2021, 06:00 p.m.

June 26, 2021, 09:00 a.m.

The format of the public hearing will consist of a Program overview. Following presentation of the Program, meeting attendees will be able to virtually participate and are encouraged to provide questions and comments on the Program. Comments on the Draft Tier 1/Program EIS/EIR from the public during the public hearing may be submitted virtually via court reporter. Spanish language translators will be present during the public hearings. People requesting Americans with Disabilities Act accommodations or additional translator services are encouraged to contact RCTC at (909) 627-2974 at least 72 hours in advance of the meetings.

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