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
Passenger Rail - Amtrak	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.
Passenger Rail - Metrolink	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.
Freight Rail	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

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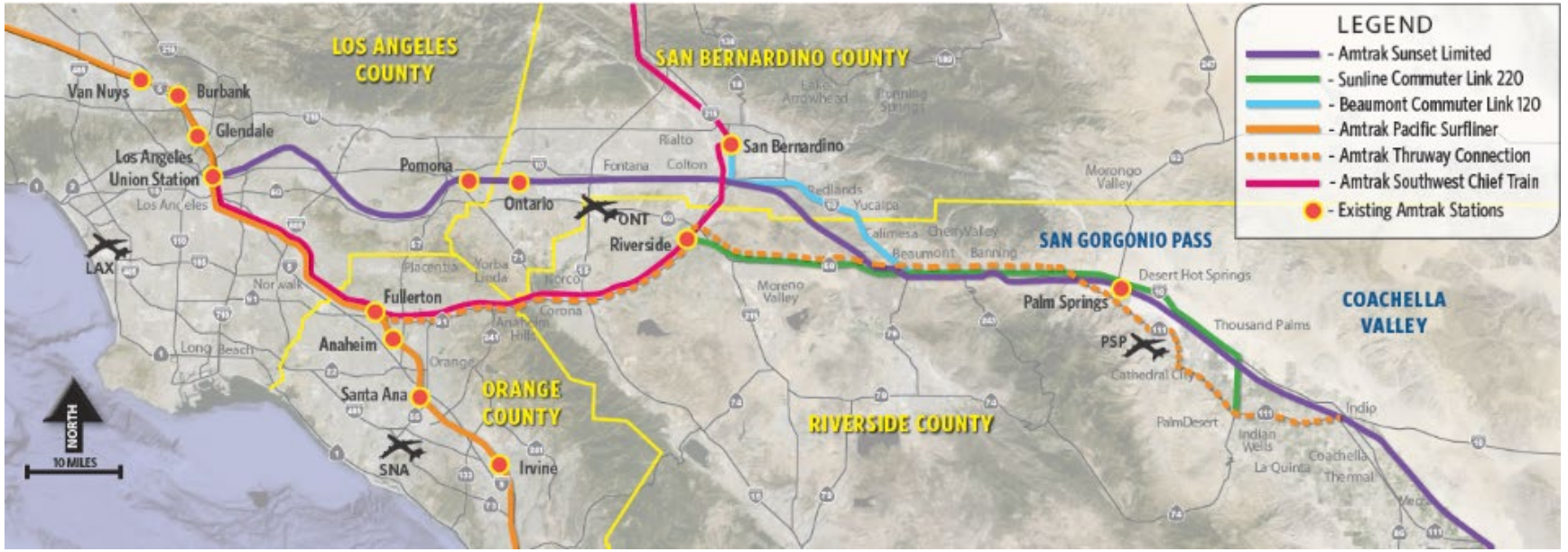
Figure 3.3-2. Existing Intercity Rail and Regional Bus Service within the Program Corridor



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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

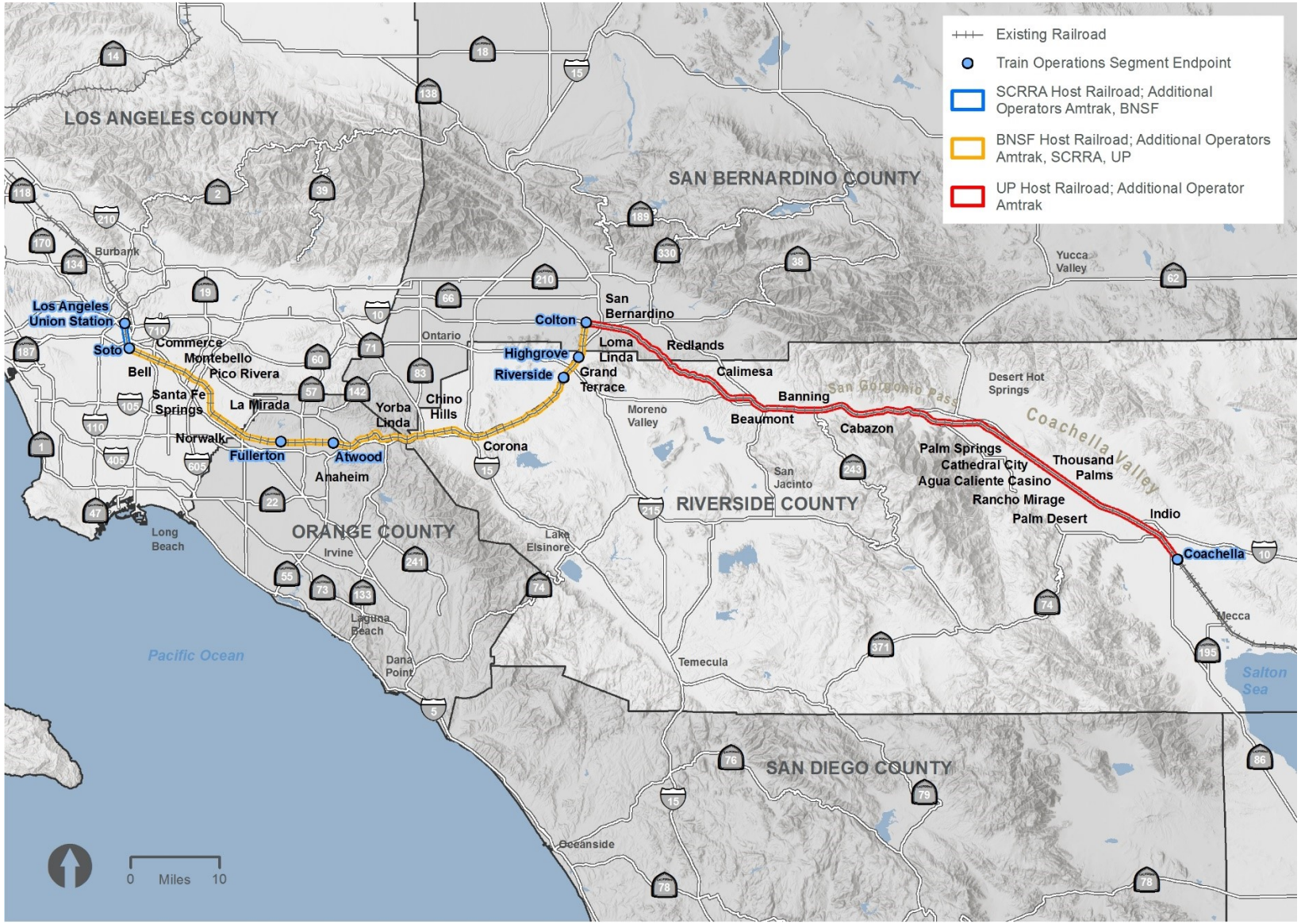

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Table 3.3-4. Existing Year (2018) Daily Train Operations in the Coachella Valley Rail Corridor (Average One-Way Trips)

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
Western Section	
LAUS (City of Los Angeles, Los Angeles County)	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. 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).

Station	Station Summary
	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.).
Fullerton Station (City of Fullerton, Orange County)	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). 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).
Riverside Station (City of Riverside, Riverside County)	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. 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).
Eastern Section	
Palm Springs Station (City of Palm Springs, Riverside County)	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. 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

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-fly[1] 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 carpooled 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)
Fatal Accidents			
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**
Injury Accidents			
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)
Fatal Accidents			
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**
Injury Accidents			
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
Would the Program conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?		
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 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.
Operation		
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
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.	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.
Would the Program conflict with or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?		
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 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 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.	TR-1	**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.

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Operation		
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.	Not applicable	Not applicable
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.	Not applicable	Not applicable
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)?		
Construction		
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.	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
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.	TR-1 LU-2 SS-1	**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.
Operation		
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.	Not applicable	Not applicable
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.	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
Would the Program result in inadequate emergency access?		
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 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 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.	TR-1 LU-2 SS-1	**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.
Operation		
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.	Not applicable	Not applicable

Impact Summary	Mitigation Strategy	Significance with Mitigation Strategy
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.	Not applicable	Not applicable

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.