Caltrans

U.S. Department of Transportation
Federal Railroad Administration

RCTC RIVERSIDE COUNTY TRANSPORTATION COMMISSION

Transportation Impact Technical Memorandum

Coachella Valley-San Gorgonio Pass Rail Corridor Service Program

May 2021

This page is intentionally blank.

Contents

Tables

Figures

Appendices

Abbreviations/Acronyms

BNSF	Burlington Northern Santa Fe
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CPUC	California Public Utilities Commission
EIR	environmental impact report
EIS	environmental impact statement
FRA	Federal Railroad Administration
LAUS	Los Angeles Union Station
I	Interstate
LOS	level of service
MUTCD	Manual on Uniform Traffic Control Devices
NEPA	National Environmental Policy Act
OPR	Office of Planning and Research
Program	Coachella Valley-San-Gorgonio Pass Rail Corridor Service Program
Program Corridor	Coachella Valley-San-Gorgonio Pass Rail Corridor
RCTC	Riverside County Transportation Commission
RTP	Regional Transportation Plan
SB	Senate Bill
SCAG	Southern California Association of Governments
SCS	Sustainable Communities Strategy
SDP	Service Development Plan
SR	State Route
TNC	transportation network company
UP	Union Pacific Railroad
VMT	vehicle miles traveled
U.S.	United States

This page is intentionally blank.

1 Introduction

The Federal Railroad Administration (FRA), California Department of Transportation (Caltrans) Division of Rail and Mass Transportation, and Riverside County Transportation Commission (RCTC) are proposing the Coachella Valley San Gorgonio Pass Rail Corridor Service Program (Program) to establish daily intercity passenger rail service between Los Angeles Union Station (LAUS) in Los Angeles County, California and the City of Coachella in Riverside County, California. This transportation impact technical memorandum evaluates potential transportation impacts along the 144-mile Coachella Valley San Gorgonio Pass Rail Corridor (Program Corridor) in support of a programmatic Tier 1 Environmental Impact Statement (EIS)/Environmental Impact Report (EIR). The evaluation of potential transportation effects resulting from the Program includes:

- Service concept and forecast ridership
- Travel time
- Rail operations
- Regional and local roadways
- Safety
- Comparison of effects by station options

1.1 Study Approach

This evaluation was prepared pursuant to the requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) and will be incorporated into the Tier 1/Program EIS/EIR evaluation.

FRA, Caltrans, and RCTC are using a tiered NEPA/CEQA process (e.g., Tier 1/Program EIS/EIR) to complete the environmental review of the Program, under 40 Code of Federal Regulations 1508.28 (titled “Tiering”), CEQA Guidelines Section 15168 (titled “Program EIR”), and Section 15170 (titled “Joint EIS/EIR”). “Tiering” is a staged environmental review process often applied to environmental review for complex transportation projects.

The Tier 1/Program EIS/EIR, along with the concurrent preparation of the Service Development Plan (SDP), are the first steps in the tiered environmental review process. Based on the decisions made in the Tier 1/Program EIS/EIR and SDP, future site-specific proposals of infrastructure improvements will be evaluated through one or more Tier 2/Project-level environmental clearance processes. A description of the Tier 1/Program EIS/EIR, SDP, and Tier 2/Project-level analysis processes are further discussed below:

- *Tier 1/Program EIS/EIR*: The Tier 1/Program EIS/EIR evaluates potential environmental impacts of the No Build Alternative and three Build Alternative Options broadly within the Program Corridor. The Program Corridor provides a flexible regional context for the best location of an enhanced passenger rail system while providing opportunities for the Build Alternative Options to account for engineering and environmental constraints. The Tier 1/Program EIS/EIR evaluation addresses broad questions and likely environmental effects within the Tier 1/Program Study Area for specific environmental resources. The resource-specific study areas generally represent the potential area where rail infrastructure improvements and station facilities could be implemented and constructed but does not represent the precise location or footprint of the improvement or facility.
- *SDP*: The SDP defines the Program's service mode, estimated ridership to include demand and revenue forecasts, operational strategy, station and access analysis, operating and maintenance costs, required infrastructure improvements and capital programming, and public benefits analysis necessary to implement the proposed intercity passenger rail service. As part of the SDP process, the site-specific infrastructure improvement requirements are being identified, including the number of stations and the general areas/communities in which stations might be located. The SDP infrastructure analysis is being informed by rail operations simulation modeling and would occur parallel to the Tier 1/Program EIS/EIR evaluation process.
- *Tier 2 Project-Level Analysis*: Based on the environmental evaluation conducted in the Tier 1/Program EIS/EIR and the site-specific infrastructure improvements identified in the SDP, a Tier 2/Project-level analysis would be required. The Tier 2/Project-level analysis would be a separate environmental review potentially led and funded by an agency other than FRA. In addition, the Tier 2/Project-level analysis process would not automatically follow the Tier 1 process, rather the potential Tier 2 Projects would need to be defined based on the Tier 1/Program EIS/EIR's broad scope and funding. The Tier 2/Project-level analysis would closely align with the future preliminary engineering process and would analyze site-specific direct and indirect Project-level effects, in addition to any required permits, consultations, or approvals needed for construction.

2 Program Location and Description

2.1 Program Location

The Tier 1/Program EIS/EIR analyzes the No Build Alternative and three Build Alternative Options in two geographic sections—a Western Section and an Eastern Section—occurring within existing railroad rights-of-way, as shown on Figure 2-1 through Figure 2-3. The Program Corridor runs west-to-east, extending up to 144 linear miles from a western terminus at LAUS to an eastern terminus in either the City of Indio or City of Coachella (depending on the Build Alternative Option).

From west to east, the cities traversed by the Build Alternative Options include Los Angeles, Vernon, Bell, Commerce, Montebello, Pico Rivera, Santa Fe Springs, Norwalk, La Mirada, Buena Park, Fullerton, Anaheim, Placentia, Yorba Linda, Chino Hills, Corona, Riverside, Grand Terrace, Colton, San Bernardino, Loma Linda, Redlands, Calimesa, Beaumont, Banning, Cabazon, Palm Springs, Cathedral City, Thousand Palms, Rancho Mirage, Palm Desert, Indio (under all Build Alternative Options), and/or Coachella (under Build Alternative Option 1 only). The boundary between Western and Eastern Sections is in the City of Colton, at the intersection of existing railroad lines owned by Union Pacific Railroad (UP) and BNSF.

2.2 Program Description

2.2.1 Build Alternative Option 1 (Coachella Terminus)

Build Alternative Option 1 includes a total Program Corridor distance of 144 miles and consists of a Western Section, terminating at LAUS, and an Eastern Section, terminating in the City of Coachella.

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

Eastern Section. Under Build Alternative Option 1, potential new infrastructure improvements on the Eastern Section of the Program Corridor could include sidings, additional main line track, wayside signals, drainage, grade separation structures, and up to five new stations constructed in the following areas: 1) Loma Linda/Redlands Area (serving the Cities of Loma Linda and Redlands),

2) the Pass Area (serving the communities of Beaumont, Banning, and Cabazon), 3) the Mid Valley (serving the communities of Cathedral City, Thousand Palms, the Agua Caliente Casino area, Rancho Mirage, and Palm Desert), 4) the City of Indio, and 5) the City of Coachella as the eastern terminus of the Program Corridor.

2.2.2 Build Alternative Option 2 (Indio Terminus)

Build Alternative Option 2 includes a total Program Corridor distance of 140.25 miles and consists of a Western Section, terminating at LAUS, and an Eastern Section, terminating at the City of Indio.

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

Eastern Section. Under Build Alternative Option 2, potential new infrastructure improvements on the Eastern Section of the Program Corridor could include sidings, additional main line track, wayside signals, drainage, grade separation structures, and up to four new potential stations could be constructed in the following areas: 1) Loma Linda/Redlands Area (serving the Cities of Loma Linda and Redlands), 2) the Pass Area (serving the communities of Beaumont, Banning, and Cabazon), 3) the Mid Valley (serving the communities of Cathedral City, Thousand Palms, the Agua Caliente Casino area, Rancho Mirage, and Palm Desert), and 4) the City of Indio as the eastern terminus of the Program Corridor.

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

Build Alternative Option 3 includes a total Program Corridor distance of 140.25 miles and consists of a Western Section, terminating at LAUS, and an Eastern Section, terminating at the City of Indio.

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

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

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

two main tracks along the Eastern Section of the Program Corridor to the proposed Mid Valley Station Area.

2.3 Construction

2.3.1 Western Section

In the Western Section, existing rail infrastructure would be used to accommodate the proposed service, and no additional track improvements would be required to accommodate the proposed service under all Build Alternative Options. LAUS would serve as the western terminus, and existing stations in the Cities of Fullerton and Riverside would be used, as depicted on Figure 2-1. No new stations or additions to existing stations would be required to accommodate the proposed service under all Build Alternative Options. The Tier 1/Program EIS/EIR Study Area for potential construction-related impacts on transportation within the Western Section is up to 600 feet from either side of the existing railroad centerline.

2.3.2 Eastern Section

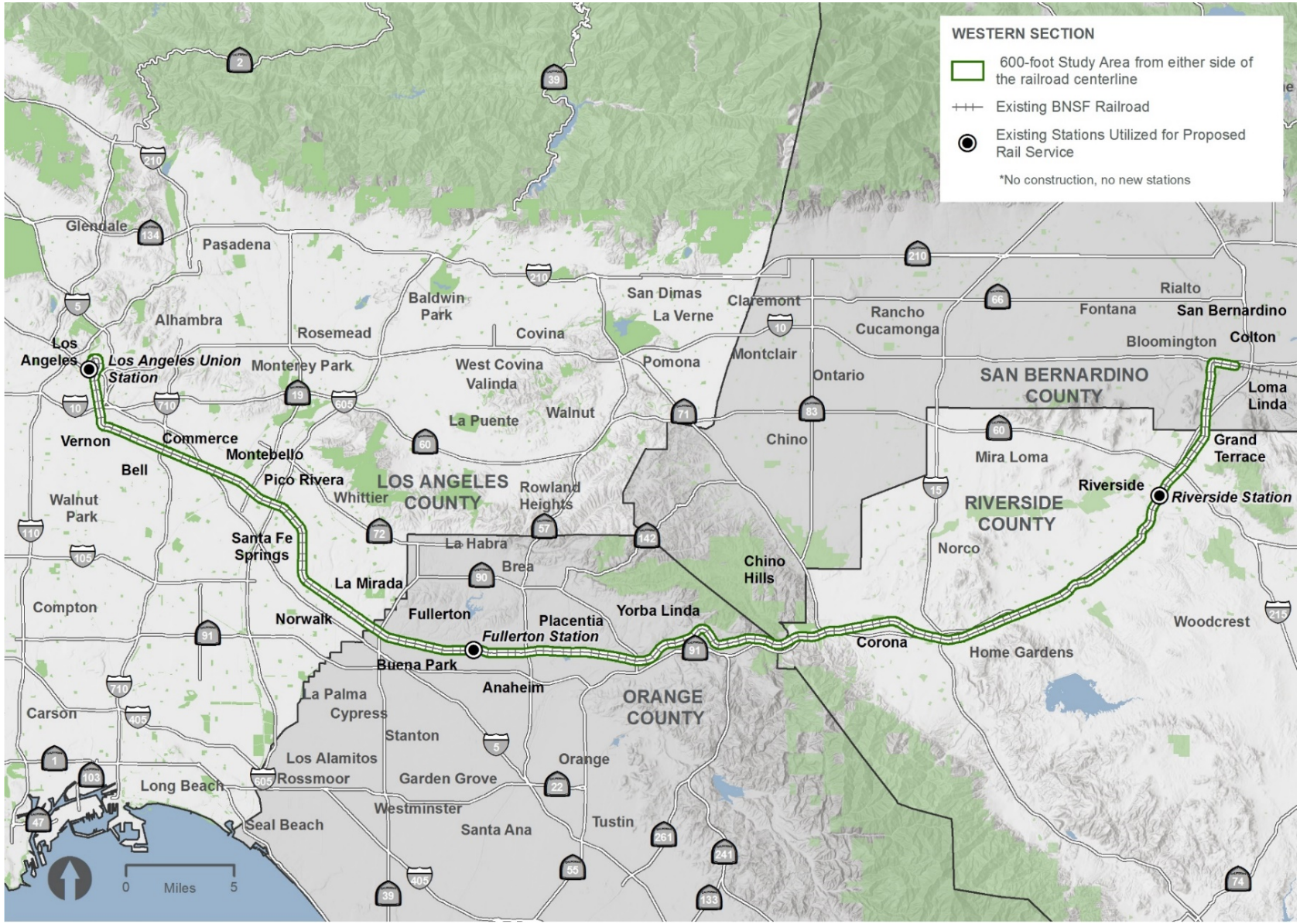
In the Eastern Section, proposed new infrastructure improvements under all Build Alternative Options could include sidings, additional main line track, wayside signals, drainage, grade-separation structures, and stations to accommodate the proposed service. The Eastern Section would use the existing station in the City of Palm Springs, which is the only existing station in the Eastern Section. Additionally, as depicted on Figure 2-2 and Figure 2-3, up to five new potential stations could be constructed in the following areas: 1) Loma Linda/Redlands Area (serving the Cities of Loma Linda and Redlands), 2) the Pass Area (serving the communities of Beaumont, Banning, and Cabazon), 3) the Mid-Valley (serving the communities of Cathedral City, Thousand Palms, the Agua Caliente Casino area, Rancho Mirage, and Palm Desert), 4) the City of Indio (under all Build Alternative Options), and/or 5) the City of Coachella (under Build Alternative Option 1 only).

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

2.4 Operation

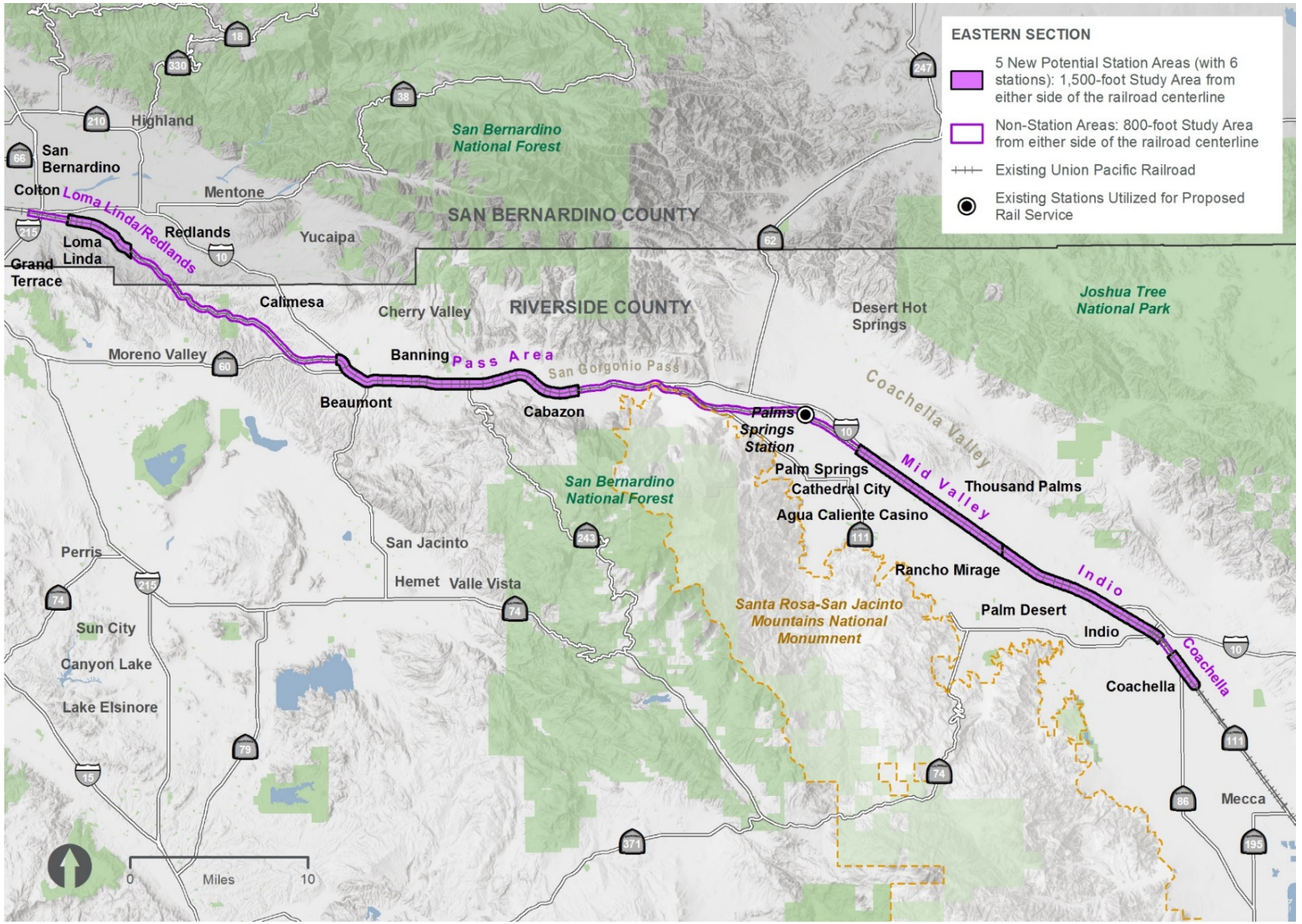
Passenger train frequencies proposed as part of the Program would consist of the addition of two daily round-trip intercity diesel-powered passenger trains operating the entire length of the Program Corridor between Los Angeles and Indio and/or Coachella, with one morning departure and one afternoon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

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



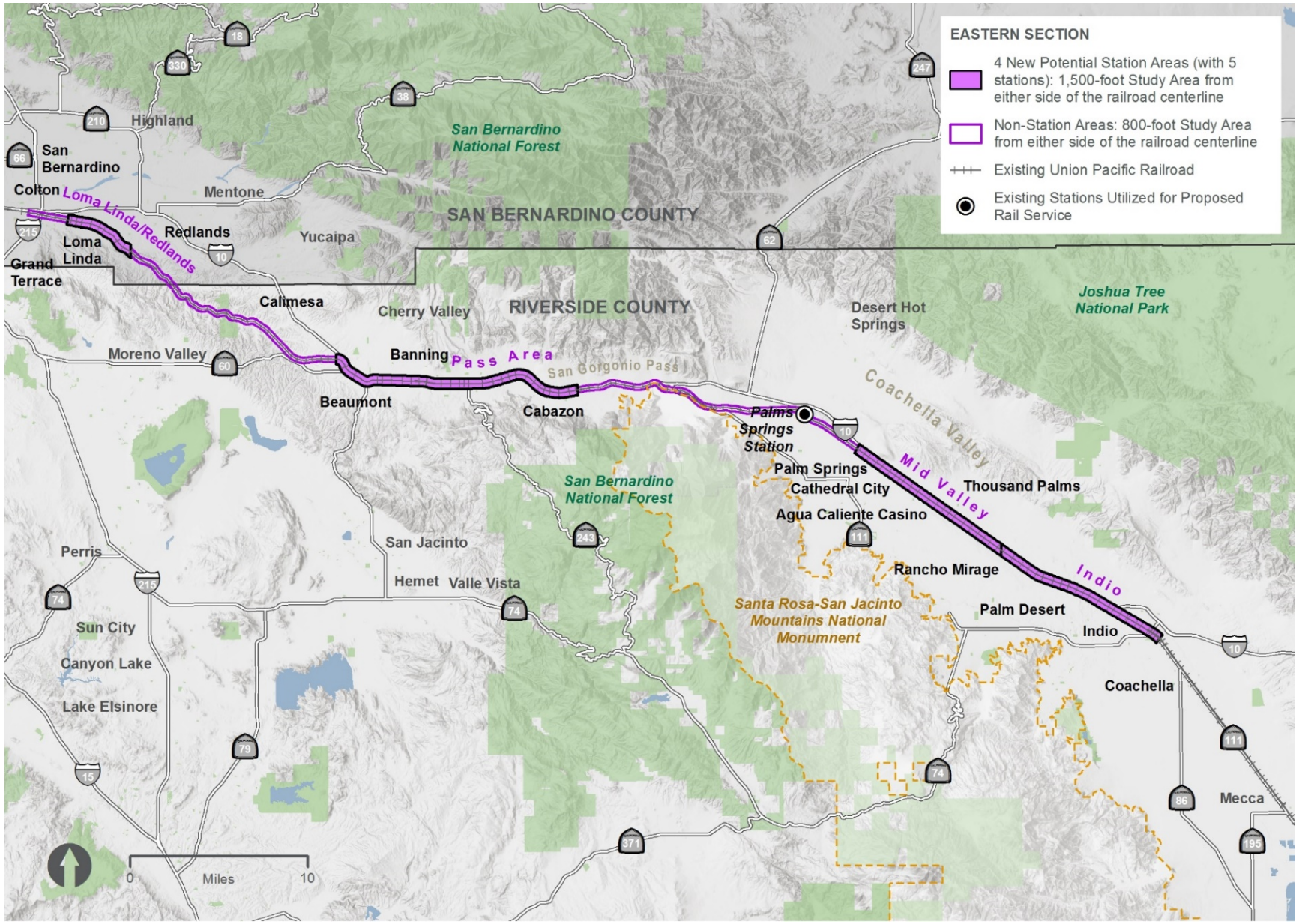
This page is intentionally blank.

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



This page is intentionally blank.

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



This page is intentionally blank.

2.4.1 Station Options

To assist the ridership forecasting, four station options were developed as part of the SDP process to test the representative station areas and eastern terminus options, depicted in Table 2-1. The potential station locations were identified from the market analysis, input from some communities' stated desire to have a station nearby, and public scoping meetings. The stations' combined catchment areas serve most of the communities in the Eastern Section. Three, four, five, and six station options within the Eastern Section were developed to study a range of service options to understand the trade-offs between ridership, travel time, and cost associated with new stations.

- The minimum-stations scenario (the low end of the range) needed to include: (1) an eastern terminus station in Indio; (2) a station in the western end of the Coachella Valley (the existing station in Palm Springs), and (3) a station in the San Gorgonio Pass Area. This is the three-station scenario.
- The maximum-stations scenario (the high end of the range) should have its eastern terminus in Coachella and should also include intermediate stations in both the Mid-Valley area (Rancho Mirage/Palm Desert) and the Loma Linda/Redlands area. This is the six-station scenario.
- The four-station scenario adds on to the three-station scenario with Coachella as the eastern terminus. Comparison of the four-station and three-station scenarios thus provides understanding of the effects of having Coachella as the eastern terminus. Comparison of the four-station and six-station scenarios provides understanding of the effects of adding stations in Mid-Valley and Loma Linda/Redlands.
- The five-station scenario removes Coachella from the six-station scenario, leaving Indio as the eastern terminus. Comparison of the five-station and six-station scenarios thus provides understanding of the effects of having Coachella as the eastern terminus. Comparison of the five-station and three-station scenarios provides understanding of the effects of adding stations in Mid-Valley and Loma Linda/Redlands.

The comparisons of ridership, travel time, and cost conducted for the SDP concluded that having the greater number of station locations would substantially increase ridership potential for a relatively modest increase in overall travel time and operating cost. Only the five-station and six-station scenarios east of Colton would be considered as long-term service options in the EIS/EIR analysis. The three-station and four-station scenarios will continue to be included in the SDP analysis but are considered part of the construction phasing process rather than long-term service options. Actual locations of new stations would be evaluated during the Tier 2/Project-level analysis.

Table 2-1. Coachella Valley Station Options

Station Options	Eastern Terminus	Existing and Proposed New Stations: Western Section	Existing and Proposed New Stations: Eastern Section
Los Angeles-Indio: Three stations east of Colton**	Indio	LAUS, Fullerton, Riverside	Pass Area*, Palm Springs, Indio*
Los Angeles-Coachella: Four stations east of Colton**	Coachella	LAUS, Fullerton, Riverside	Pass Area*, Palm Springs, Indio*, Coachella*
Los Angeles-Indio: Five stations east of Colton***	Indio	LAUS, Fullerton, Riverside	Loma Linda/Redlands*, Pass Area*, Palm Springs, Mid-Valley*, Indio*
Los Angeles-Coachella: Six stations east of Colton***	Coachella	LAUS, Fullerton, Riverside	Loma Linda/Redlands*, Pass Area*, Palm Springs, Mid-Valley*, Indio*, Coachella*

Notes:

* indicates proposed new stations

** Construction phasing scenario

*** Long-term service option

LAUS=Los Angeles Union Station

3 Regulatory Framework

3.1 Federal

3.1.1 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."

3.2 State

3.2.1 California Department of Transportation

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

3.2.2 Senate Bill 743

California's Senate Bill (SB) 743, approved in 2013, changes the evaluation of traffic impacts under CEQA. The bill requires the Office of Planning and Research (OPR) 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 (LOS). These metrics will no longer be requirements to determine traffic impacts under CEQA. Rather, SB 743 requires OPR to establish criteria for determining the significance of transportation impacts that promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses. In response, OPR published a document titled *Updating Transportation Impacts Analysis in the CEQA Guidelines: Preliminary Discussion Draft of Updates to the CEQA Guidelines Implementing Senate Bill 743* (State of California OPR 2013). These preliminary updates identified vehicle miles traveled (VMT) as the primary metric for evaluating transportation impacts. OPR published a revised Technical Advisory in April 2018. The revised Technical Advisory identified VMT (per capita, per employee, or other

appropriate efficiency measure) as new metrics for evaluating transportation impacts. In December 2018, the California Natural Resources Agency finalized updates to the CEQA Guidelines, including the incorporation of SB 743 modifications; the statewide application of VMT as the primary metric for evaluating transportation impacts was initiated in July 2020.

SB 743 preserves local government authority to make planning decisions. Therefore, LOS and congestion can still be measured for planning purposes; however, studies based on these metrics will no longer be required as part of the CEQA process.

3.3 Regional

Consideration of regional rail and roadway operations would include regional agency plans and regulations applicable to the planning of transportation infrastructure. The Southern California Association of Governments (SCAG) is the regional planning agency for the entire Tier 1/Program EIS/EIR Study Area for transportation.

3.3.1 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 Organization 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 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (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.

3.4 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 effects resulting from construction and operation of infrastructure improvements are known. Tier 2/Project-level environmental review considerations are discussed further in Section 7.

4 Methodology

The Tier 1/Program EIS/EIR methodology identifies the approach and assumptions for the transportation assessment in regard to analyzing environmental consequences of the No Build Alternative and the three Build Alternative Options related to transportation impacts. The transportation impact assessment considers the general change in travel conditions from a user's perspective for the proposed transportation improvements by comparing the Build Alternative Options to the No Build Alternative.

4.1 Definitions

The following travel condition factors were used to report the performance of the Program:

Transportation Connectivity: Transportation connectivity measures both quality and extent to which transfers between transit and intercity or commuter rail are available at stations, since the number of connections and quality of transfers between these modes have implications for accessibility of the overall transportation network. The quality of transfer would include the amount of wait time at stations to connect to another mode of transportation to reach the final destination. Connectivity measures the LOS for intercity and commuter rail and public transit services at intercity rail stations using the metrics such as hours of service and frequency of each connecting mode (i.e., intercity passenger rail, commuter passenger rail, and public transit), consistent with information presented in the Transportation Research Board's *Transit Capacity and Quality of Service Manual, 2nd Edition* (2003).

Service Frequency: Service frequency is a measure of how often passenger rail service is provided (i.e., the number of trains, trains per hour, peak service vs. off-peak service, weekday vs. weekend/holiday service, event service) at stations or between station stops. Service frequency, combined with train capacity, drives the person-carrying capacity of the service.

Accessibility: At a regional level, accessibility measures the traveler's ability to travel to different parts of the region. At a local level, accessibility measures the ease with which passengers can access rail stations from the existing transportation network, including pedestrian and bicycle networks and public transportation modes.

Corridor Travel Time: Corridor travel time is the time required to travel through part or all of the Program Corridor. Travel time for this analysis represents an average travel time (on any mode or as a combination of modes) under normal operating conditions. For the Tier 1/Program EIS/EIR, the

Service Development Plan will identify rail infrastructure needed so the service can achieve an on-time performance level of 90 percent.

Ridership: Ridership is a measure of the number of passenger trips traveling through the Program Corridor, as well as station-level boardings/alightings. In addition, the rail ridership drives the reduction of vehicle trips and vehicle miles of travel on the regional highway system. This measure is also relevant to connectivity as the increased use of the existing rail stations are expected to result in increased demand for service on connecting and proximate public transportation operations, including bus, light rail, and commuter rail.

Safety: Safety benefits are measured in terms of reduced transportation related incidents, especially those involving fatalities and serious injuries. Vehicular trips are anticipated to be shifted to the passenger rail service, thereby reducing the potential of auto-related accidents, but increasing the potential of rail-related accidents. However, even if rail-related accidents may occur, statistically rail travel is safer per passenger mile than automobile travel.

4.2 Horizon Years

For the purpose of comparison between the Build Alternative Options and No Build Alternative, 3 horizon years were analyzed:

- **Existing Year (2018):** Under this scenario, Program-related transportation impacts on the surrounding roadways and railroads (passenger and freight) were evaluated to determine traffic 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 on the surrounding roadways and railroads (passenger and freight) system were evaluated on the first day the Program is operational. Any proposed infrastructure improvements (analyzed under the Tier 2/Project-level analysis) are expected to be complete by Opening Year (2024). No additional Program-related infrastructure changes would occur between Opening Year and Future Year (2044).
- **Future Year (2044):** Under this scenario, Program-related transportation impacts on the surrounding roadways and railroads (passenger and freight) system were evaluated under full build-out conditions, when ridership is expected to reach its highest potential.

4.3 Approach

Travel conditions include service frequency, travel time, connectivity between modes, 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 4-1 depicts the transportation assessment criteria and metrics for quantifying Program-related effects.

Table 4-1. Regional Transportation Methodology Framework

Level of Analysis	Mode	Unit of Analysis	Metric	Travel Condition Factor
Regional	Highways and roadways	Travel along Program Corridor	Vehicle trip reduction	Ridership
Regional	Highways and roadways	Travel along Program Corridor	VMT reduction	Ridership
Regional	Highways and roadways	Travel along Program Corridor	Highway safety enhancement (accident reduction)	Safety
Regional	Passenger rail	Travel along Program Corridor	Off-highway person-capacity	Frequency
Regional	Passenger rail	Travel along Program Corridor	Annual passengers	Ridership
Regional	Passenger rail	Travel along Program Corridor	Passenger miles traveled	Ridership
Regional	Passenger rail	Travel along Program Corridor	Travel time via public transportation	Travel time
Regional	Passenger rail	Travel along 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 Program Corridor	Hours of service and frequency of possible connecting mode (commuter rail/public transit)	Connectivity

Level of Analysis	Mode	Unit of Analysis	Metric	Travel Condition Factor
Regional	Passenger rail	Representative station areas along Program Corridor	Number of trains per day	Frequency
Regional	Passenger rail	Representative station areas along Program Corridor	Number of boardings/alightings for each station area	Ridership
Regional	Passenger rail	Representative station areas along Program Corridor	Transit accessibility to other parts of the region	Regional Accessibility
Regional	Passenger rail	Representative station areas along Program Corridor	Ease and quality of transfers	Local Accessibility
Regional	Passenger rail	Representative station areas along Program Corridor	Ease of station access (multimodal access, frequency of access)	Local Accessibility

Notes:

VMT=vehicle miles traveled

4.4 Tier 1/Program EIS/EIR Study Area

The Tier 1/Program EIS/EIR Study Area for this Transportation Impact Technical Memorandum is based on the regional and local impact assessment. For the regional impacts, the four-county Tier 1/Program EIS/EIR 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. The specific extent of localized impact areas around stations will be determined in Tier 2/Project-level analysis, when specific locations for each proposed station will be identified.

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

This page is intentionally blank.

5 Existing Conditions

The description of existing conditions characterizes the aviation service and highway/roadway network (for passenger vehicles and buses), as well as the existing rail service (passenger and freight) within the Tier 1/Program EIS/EIR Study Area.

5.1 Aviation Service

The only scheduled air passenger service in the Tier 1/Program EIS/EIR Study Area operates between Palm Springs Airport and Los Angeles International Airport. The average number of daily flights between Los Angeles International Airport and Palm Springs Airport (all operated by United Airlines) varies seasonally. The advance round-trip fare is between $300.00 to over $500.00.

5.2 Highways and Roadways

5.2.1 Regional Road Network

The key regional highways serving the Tier 1/Program EIS/EIR Study Area are presented on Figure 5-1. In the Western Section under all Build Alternative Options, the three most important west to east regional highways include Interstate (I) 10, State Route (SR) 60, and SR 91. In the Eastern Section, the Tier 1/Program EIS/EIR Study Area is served by I-10, SR 60, and SR 111. Within the Coachella Valley, the main roadways that carry vehicles to the San Gorgonio Pass are I-10 and SR 111. I-10 runs along the northeastern rim of the Coachella Valley, while SR 111 runs approximately 30 miles along the southwestern rim of the Coachella Valley and serves as the main arterial highway between almost all Coachella Valley cities. The regional road network for Build Alternative Options 2 and 3 are the same when compared with Build Alternative Option 1.

This page is intentionally blank.

Figure 5-1. Key Corridor Highways within the Program Corridor (All Build Alternative Options)

This page is intentionally blank.

5.3 Bus and Rail Service

This section describes existing regional bus and rail transit services operating within the Program Corridor, as depicted on Figure 5-2.

5.3.1 Bus Transit Service

Public transportation in different parts of the Tier 1/Program EIS/EIR Study Area is provided by the SunLine Transit Agency and Pass Transit. In addition, Amtrak Thruway bus service is provided to connect rail passengers to Amtrak trains in Fullerton and Bakersfield, and privately operated intercity bus service is provided by Greyhound. In this section, these bus services are briefly described.

SunLine's Commuter Link 220

Introduced in September 2012, SunLine's commuter bus service operates between the Coachella Valley and Western Riverside County. The route is 73 miles long with stops in the Coachella Valley (Palm Desert and Thousand Palms), the San Gorgonio Pass Area (Morongo Casino/Cabazon, Banning, and Beaumont), Moreno Valley, the University of California Riverside, and the downtown Riverside Metrolink train and bus stations, where riders can transfer to travel to other parts of the Los Angeles Basin. Three round-trips are operated on weekdays. Westbound trips include two morning and one afternoon departure from Palm Desert, while eastbound trips include one morning and two afternoon/evening departures from the Riverside Metrolink station. Details of service and route for SunLine's Commuter Link 220 are presented in Appendix A.

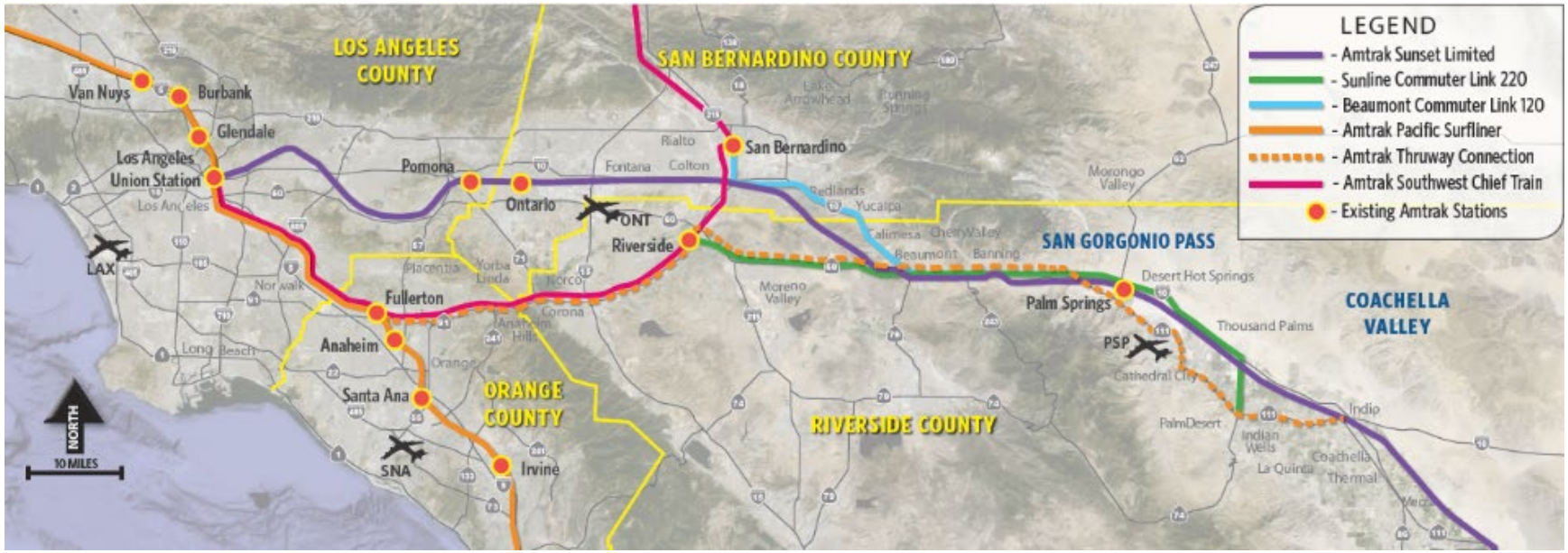
The one-way fare for this service is $6.00, while a 30-day general pass is $150.00. Trip time between Palm Desert and the Riverside Metrolink station is approximately 2 hours 15 minutes (SunLine Transit Agency 2017).

Pass Transit's Commuter Link 120

Provided by Pass Transit, the Commuter Link 120 is an express bus service between Beaumont and the San Bernardino Metrolink station, with stops in Calimesa and at the Loma Linda Veterans Administration Hospital. The service makes seven round-trips throughout the day each weekday and includes five round-trips on Saturdays. In San Bernardino, riders can catch Metrolink trains to travel to other 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. Details of service and route for Pass Transit's Commuter Link 120 is presented in Appendix A.

The one-way fare is $3.00, while a 30-day general pass is $75.00 (City of Beaumont 2016). Trip time from Beaumont to San Bernardino Metrolink ranges between 40 and 55 minutes.

Figure 5-2. Intercity Rail and Regional Bus Service within the Program Corridor (Build Alternative Options 1, 2, and 3)



This page is intentionally blank.

Amtrak Thruway

Amtrak Thruway motorcoaches use Amtrak-owned, but locally contracted, intercity transit buses to provide connecting services between Amtrak train stations and areas that are not directly served by its passenger trains. 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. A typical one-way fare of Thruway bus and Pacific Surfliner rail service between Indio and Los Angeles with transfer at Fullerton is $21.00, and the trip time varies between 3 hours 42 minutes and 4 hours 35 minutes depending on direction of travel and the timing of the connection in Fullerton.

Twelve daily Amtrak Thruway buses, presented in Table 5-1, 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. Detailed schedule information on each service is presented in Appendix A.

Table 5-1. Amtrak Thruway Service within the Program Corridor (Build Alternative Options 1, 2, and 3)

Bus Number	Direction of Travel	Service Area	Stops	Connecting Trains	Frequency
Amtrak Thruway Buses Connecting with Amtrak Pacific Surfliner Trains					
4968	Eastbound	Fullerton to Palm Springs	Fullerton, Riverside, Cabazon, Palm Springs Downtown, Palm Springs Airport	Pacific Surfliner Trains 768, 769, and 572	One one-way trip per day
4984	Eastbound	Fullerton to Indio	Fullerton, Riverside, Cabazon, Palm Springs Downtown, Palm Springs Airport, Palm Desert, La Quinta, Indio	Pacific Surfliner Trains 782, 584, and 583	One one-way trip per day
4969	Westbound	Indio to Fullerton	Indio, La Quinta, Palm Desert, Palm Springs Airport, Palm Springs Downtown, Cabazon, Riverside, Fullerton	Pacific Surfliner Trains 769, and 572	One one-way trip per day
4985	Westbound	Palm Springs to Fullerton	Palm Springs Airport, Palm Springs Downtown, Cabazon, Riverside, Fullerton	Pacific Surfliner Trains 785 and 584	One one-way trip per day

Bus Number	Direction of Travel	Service Area	Stops	Connecting Trains	Frequency
Amtrak Thruway Buses Connecting with Amtrak San Joaquin Trains					
5402	Eastbound	Bakersfield to Indio	Bakersfield, La Crescenta, Pasadena, Claremont, Ontario, Riverside, San Bernardino, Cabazon, Palm Springs Downtown, Palm Springs Airport, Palm Desert, La Quinta, Indio	San Joaquin Train 702	One one-way trip per day
5412	Eastbound	Bakersfield to Indio	Bakersfield, La Crescenta, Pasadena, Claremont, Ontario, Riverside, San Bernardino, Cabazon, Palm Springs Downtown, Palm Springs Airport, Palm Desert, La Quinta, Indio	San Joaquin Train 712	One one-way trip per day
5410	Eastbound	Bakersfield to San Bernardino	Bakersfield, La Crescenta, Pasadena, Claremont, Ontario, Riverside, San Bernardino	San Joaquin Train 710	One one-way trip per day
5414	Eastbound	Bakersfield to San Bernardino	Bakersfield, La Crescenta, Pasadena, Claremont, Ontario, Riverside, San Bernardino	San Joaquin Train 714	One one-way trip per day
5415	Westbound	San Bernardino to Bakersfield	San Bernardino, Riverside, Ontario, Claremont, Pasadena, La Crescenta, Bakersfield	San Joaquin Train 715	One one-way trip Monday to Friday
5465	Westbound	San Bernardino to Bakersfield	San Bernardino, Riverside, Ontario, Claremont, Pasadena, La Crescenta, Bakersfield	San Joaquin Train 717	One one-way trip Saturday and Sunday
5417	Westbound	Indio to Bakersfield	Indio, La Quinta, Palm Desert, Palm Springs Airport, Palm Springs Downtown, Cabazon, San Bernardino, Riverside, Ontario, Claremont, Pasadena, La Crescenta, Bakersfield	San Joaquin Train 717	One one-way trip per day
5403	Westbound	Indio to Bakersfield	Indio, La Quinta, Palm Desert, Palm Springs Airport, Palm Springs Downtown, Cabazon, San Bernardino, Riverside, Ontario, Claremont, Pasadena, La Crescenta, Bakersfield	San Joaquin Train 703	One one-way trip per day

Source: Amtrak 2018 (Pacific Surfliner Schedule, effective 04.01.18, San Joaquin Schedule, effective 05.07.18)

Greyhound Bus

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 in eastern Riverside County are served by this Greyhound route. These communities include Indio, Thousand Palms, and Banning. An average 'economy' one-way fare from Indio to Los Angeles varies between $20.00 and $38.00, depending on the day, time, and direction of travel. Trip time for daytime service ranges from 3 to 4 hours (late-night non-stop service makes the trip in 2.5 hours).

5.3.2 Passenger Rail Service

Amtrak Rail

In Southern California, Amtrak uses railroad lines operated by freight railroads and Metrolink commuter rail. Currently, there is one Amtrak service to the Eastern Section of the Program Corridor and three to the Western Section of the Program Corridor.

Only one Amtrak train currently serves the Coachella Valley: the Sunset Limited, a long-distance train that travels between Los Angeles and New Orleans with three roundtrips 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 LAUS. 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. A one-way fare between Palm Springs and Los Angeles is $22.00.

Amtrak Pacific Surfliner provides 12 daily roundtrips, per week, between Los Angeles and San Diego. The trains have scheduled stops at Fullerton and LAUS in the Western Section of the Program Corridor. Pacific Surfliner frequency is approximately one train every hour to hour and half in each direction. Eastbound train service run from approximately between 6:00 a.m. and 11:00 p.m., while westbound train service is approximately between 6:00 a.m. and mid-night. One-way fare between Fullerton and Los Angeles is $13.95.

Amtrak Southwest Chief provides daily long-distance service between Los Angeles and Chicago. The trains have scheduled stops at Los Angeles, Fullerton, and Riverside stations in the Western Section of the Program Corridor. The westbound Southwest Chief has a scheduled stop in Riverside and Fullerton at 6:03 a.m. and 6:54 a.m., en route to an 8:00 a.m. arrival in Los Angeles. The eastbound train is scheduled to depart Los Angeles at 6:00 p.m. and makes a scheduled stop at

Fullerton and Riverside at 6:35 p.m. and 7:18 p.m. en route to Chicago. A one-way fare between Los Angeles and Riverside is $13.00.

Details of all Amtrak service on the Program Corridor is presented in Appendix A.

Metrolink Rail

Metrolink commuter rail service currently does not operate within the Coachella Valley. However, four Metrolink services that operate in Orange County, Riverside, or San Bernardino connect to LAUS. 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).

The Orange County Line operates 10 eastbound trains and 9 westbound trains between LAUS and east of Fullerton. Headways vary between approximately 30 minutes to 1 hour, during the peak direction of travel. During weekends and holidays, there are four round-trains between LAUS and Oceanside. One way fare between Fullerton and LAUS is $8.50 per person.

The San Bernardino Line operates 19 round-trips on weekdays, with departures scheduled throughout the day on headways ranging from 10 to 95 minutes. On Saturdays, 10 round-trip trains run on approximately 90-minute headways, to and from LAUS, and on Sundays, seven round-trip trains are operated on approximately 2- to 3-hour headways. An average one-way fare from San Bernardino to Los Angeles is $13.25, and the trip takes about 1 hour and 35 minutes.

The Riverside Line operates with six round-trip trains on weekdays only between Downtown Riverside and LAUS. Most trains operate to LAUS in the morning and to Riverside in the evening. Headways vary from approximately 30 minutes to 2 hours. An average one-way fare from Riverside to Los Angeles is $13.00 with a typical scheduled travel time of 1 hour 25 minutes.

The 91/Perris Valley Line operates four trains in the westbound direction and five trains in the eastbound direction between Downtown Riverside and LAUS on weekdays. Headways vary between approximately 30 minutes to 1 hour, during the peak direction of travel. During weekends, there are two round-trip trains between Downtown Riverside and LAUS. An average one-way fare from Downtown Riverside to Los Angeles is $13.00 with a travel time of 1 hour 35 minutes.

5.3.3 Freight Rail Service

Both the Western and Eastern Sections of the Program Corridor are key segments 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 United States (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, and unlike passenger rail service, do not have a set schedule.

5.3.4 Rail Volume and Rail Corridor Ownership

As shown in Table 5-2 and Figure 5-3, the Western Section operation is divided among BNSF and SCRRA (or Metrolink). BNSF-operated 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 that use part or all of the Program Corridor. The SCRRA operated section averages 26 and 28 passenger and commuter trains, respectively per day to and from LAUS and also has one limited local freight service.

The Western Section has more variability in volume because of the additional passenger and commuter train services that use this section. Three different Metrolink commuter rail lines use part of the Western Section: (1) the Inland Empire-Orange County Line, linking San Bernardino and Oceanside, uses the Program Corridor between Colton and Atwood; (2) the 91/Perris Valley Line, linking Perris and Los Angeles, uses the Program Corridor between Riverside and LAUS; and (3) the Orange County Line, linking Oceanside and Los Angeles, uses the Program Corridor between Fullerton and LAUS. In addition, Amtrak operates two different intercity passenger services in the Western Section: (1) Pacific Surfliner intercity passenger trains, linking San Diego with Los Angeles and San Luis Obispo, use the Program Corridor between Fullerton and LAUS; and (2) Amtrak's long distance Southwest Chief, linking Chicago and Los Angeles, uses the full length of the Western Section between Colton and LAUS.

In the Eastern Section of the Program Corridor, UP's Yuma Subdivision, averages approximately trains per day and is predominately freight trains. 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 of the Program Corridor. Existing rail volume and rail corridor ownership within the Program Corridor are the same under all Build Alternative Options.

Table 5-2. Existing Daily Train Operations in the Coachella Valley Rail Program Corridor (Average One-Way Trips), 2018

Segments	Existing Intercity Passenger One-way Train Trips	Existing Commuter One-way Train Trips	Existing Freight One-way Train Trips	Total Existing 2018 Average Daily Volume of Trains
Western Section (SCRRA – Host Railroad; Additional Operators – Amtrak, BNSF)				
Los Angeles Union Station-Soto*	26	28	1	55
Western Section (BNSF – Host Railroad; Additional Operators – Amtrak, SCRRA, UP)				
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:

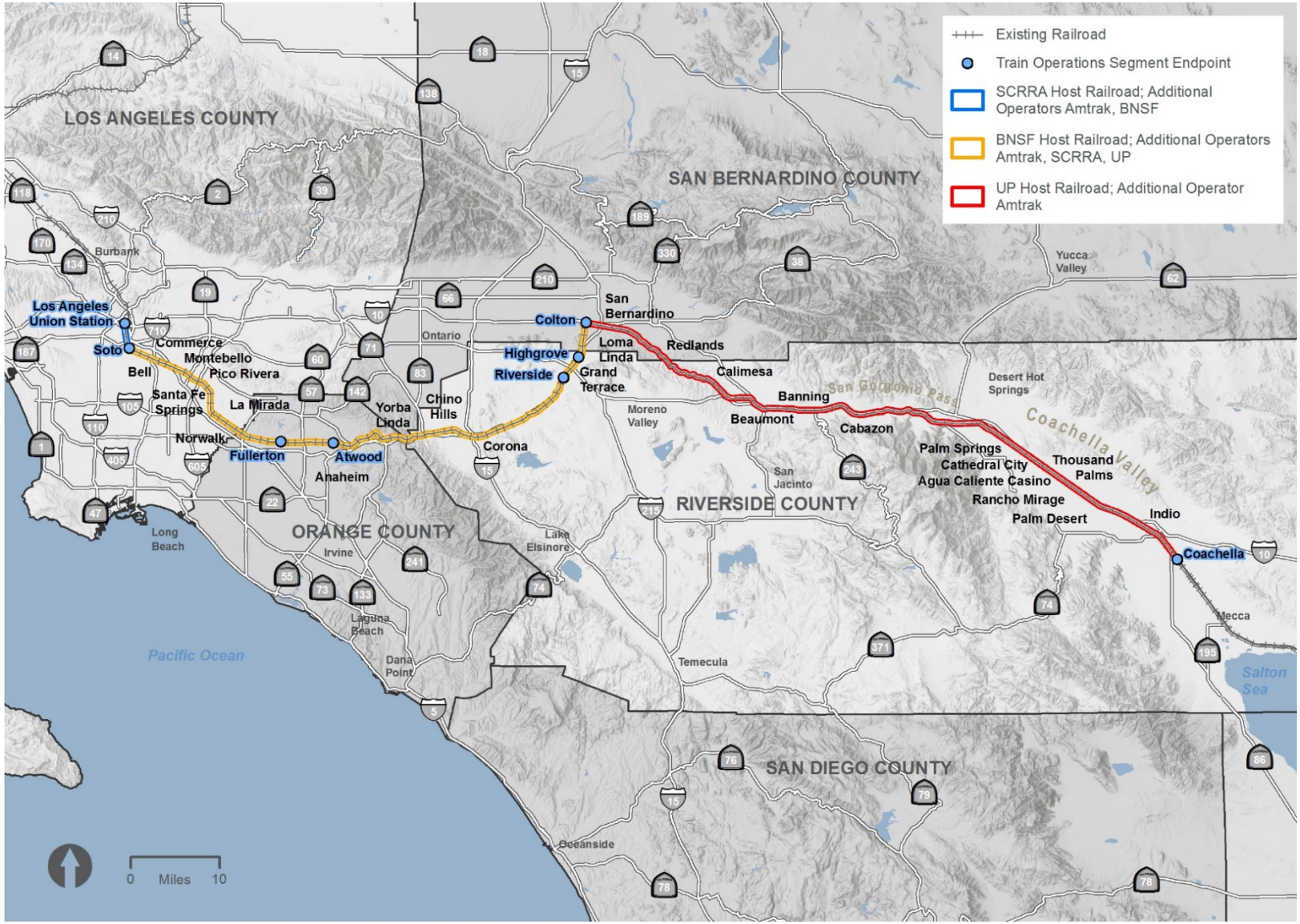
Daily train counts represent revenue train movements on a weekday (Monday-Friday). Freight train counts are based on Base Year (2013) daily freight train totals for the line segments shown above, as published in the 2018 California State Rail Plan, Appendix A.4, Table 20. Passenger and commuter train 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

Figure 5-3 presents the existing freight routes along the Program Corridor and outlines the segment endpoints, host railroads, and additional operators used in Table 5-2 to show 2018 train operations and access rights.

Figure 5-3. Host Railroads and Additional Operators within the Program Corridor



Note: Train operations and access rights on the rail segments in this map are reported in Table 5-2.

This page is intentionally blank.

5.3.5 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.

The Program Corridor crosses 180 (129 in the Western Section and 51 in the Eastern Section) existing highway/rail crossings, including the following types:

- Public at grade crossings: 51
- Private at grade crossings: 12
- Overpass, public roadway: 65
- Underpass, public roadway: 48
- Underpass, private crossing: 3
- Underpass, pedestrian, public: 1

Railroad/roadway crossings within the Program Corridor are the same under all Build Alternative Options.

5.3.6 Regional Accessibility

For public transportation users, regional accessibility between the Coachella Valley/San Gorgonio Pass area and the greater Los Angeles area is limited to the areas served by the Amtrak Thruway Service, the SunLine Commuter Link 220, the Beaumont Commuter Link 120, and the rail and transit services they connect to. Table 5-3 summarizes the existing regional accessibility that is available through the Program Corridor using these services.

Table 5-3. Existing Regional Accessibility via Public Transportation within the Program Corridor

City	Pass Area	Palm Springs	Mid-Valley	Indio/Coachella
Los Angeles	• via Amtrak Thruway/Pacific Surfliner • via Sunline Commuter Link 220 / Metrolink 91-Perris Valley Line	• via Amtrak Thruway/Pacific Surfliner	• via Amtrak Thruway/Pacific Surfliner • via Sunline Commuter Link 220 / Metrolink 91-Perris Valley Line • via Beaumont Commuter Link 120 / Metrolink San Bernardino Line	• via Amtrak Thruway/Pacific Surfliner
Fullerton	• via Sunline Commuter Link 220 / Metrolink 91-Perris Valley Line	—	• via Sunline Commuter Link 220 / Metrolink 91-Perris Valley Line	—
Riverside	• via Sunline Commuter Link 220 / Metrolink 91-Perris Valley Line	—	• via Sunline Commuter Link 220 / Metrolink 91-Perris Valley Line	—
Loma Linda/ Redlands	• via Beaumont Commuter Link 120 / Metrolink San Bernardino Line	—	—	—

5.3.7 Station Access and Parking

Four existing stations along the Program Corridor have existing platforms and facilities that are anticipated to be used for the proposed passenger rail service. Local access to each of the existing stations is presented in this section.

Los Angeles Union Station, Los Angeles

LAUS, located at 800 Alameda Street in the City of Los Angeles, is a regional transportation hub providing multimodal access, including pedestrian and bike access. The station provides bike 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. These include long-haul, express, and local municipal buses provided by the City of Los Angeles Department of Transportation and Metro. Buses include the Los Angeles International Airport FlyAway, provided by Los Angeles World Airports, with scheduled ground transportation between Los Angeles International Airport and LAUS. Express buses are provided by OCTA, Foothill Transit, and the City of Los Angeles Department of Transportation, as well as Amtrak Thruway. Local buses include the City of Los Angeles Department of Transportation Downtown Area Short Hop and other local service providers. 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). 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 roadway access to LAUS is provided via U.S. Highway 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.). The LAUS east garage is accessible 24 hours, 7 days a week, and is the only garage available for overnight parking. Parking on the west side of the station is usually valet parking or short term for a maximum of 24 hours (Union Station Los Angeles 2018).

Fullerton Station, Orange County

The Fullerton Station, located at 120 Santa Fe Avenue in Fullerton, also serves as a multimodal transportation center and provides bike and pedestrian access. The station provides bike racks and lockers. The station is served by two Metrolink lines (91/Perris Valley Line and Orange County Line) and by two Amtrak services (Pacific Surfliner and Southwest Chief). Local bus service is provided by OCTA. The Amtrak Thruway buses also makes stops at this station. Access to the Fullerton station, located in Orange County, 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 access to the Fullerton station is provided via SR 91. The Fullerton station provides free parking and has 1,321 parking spaces of which 9 are reserved for handicapped drivers. The parking structure west of Harbor Boulevard offers 814 spaces (Southern California Regional Rail Authority 2018). Overnight parking for 72 hours is available at the Fullerton station.

Riverside Station, Riverside County

Located at 4066 Vine Street, the Riverside 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. Riverside Transit Agency also operates a free shuttle connecting the station with the downtown offices and businesses. The station has sidewalks to provide pedestrian access and is accessible by bikes, even though there are no demarcated bike accesses. Bike lockers or racks are not available at this station.

Access to the Riverside station, located in Riverside County, is provided via Vine Street on the north, 14th Street on the west, and Commerce Street on the south. Regional access to the Riverside station is provided via SR 91 and SR 60. The Riverside station provides free parking and has 1,115 parking spaces of which 25 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) (Southern California Regional Rail Authority 2018).

Palm Springs Station, Riverside County

Located on Palm Springs Station Road, access to the Palm Springs station, located in Riverside County, is provided via Indian Canyon Drive and Palm Springs Station Drive on the east. Regional access to the Palm Springs station is provided via I-10. A total of 40 parking spaces are available at the Palm Springs station. Of these, four are designated as handicapped spaces. In addition, 6 drop off/pick up spaces and 10 bus bays are provided[1]. SunLine provides bus connection along Indian Canyon Drive but does not provide direct access to the station. Currently, the station does not provide any bike or pedestrian access.

[1] Based off Google aerial imagery of Palm Springs station.

6 Environmental Consequences

This section identifies potential transportation impacts resulting from the implementation of the Build Alternative Options. Transportation-related effects are evaluated qualitatively in this technical memorandum consistent with a Tier 1/Program EIS/EIR. Future ridership projections for passenger rail service are presented for each station option. In addition to passenger rail service characteristics, impacts on freight rail service, grade crossings, and vehicular traffic are discussed in the following sections.

6.1 Overview

Effects from the Program 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 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 right-of-way 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.

Construction and operation of the Build Alternative Options would result in transportation impacts, as discussed below. In general, when compared with Build Alternative Option 1, Build Alternative Option 2 would have slightly reduced effects on transportation due to a shorter route alignment and reduced station options. When compared with Build Alternative Option 1 or 2, Build Alternative Option 3 may have slightly reduced effects due to a slightly 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 all Build Alternative Options when compared with the No Build Alternative.

6.2 No Build Alternative

Under the No Build Alternative, a new passenger rail system would not be built, and, hence, transportation impacts are not anticipated, beyond those that would occur as a result of other approved rail and road projects.

Transportation impacts because of increased rail operations under the No Build Alternative is 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 will 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 rail corridor to connect Los Angeles to Anaheim.

In the Eastern Section, the No Build Alternative would be similar to existing conditions for passenger rail and transit services that connect the Coachella Valley and San Gorgonio Pass area with the greater Los Angeles metropolitan area, as well as forecasted increases in freight traffic. There are no known existing or committed transportation improvement projects 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 growth providing 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, programmed, or included in the fiscally constrained RTP. An increase in traffic and VMT is expected under the No Build Alternative because more cars would be on the roadways compared with what would occur with implementation of the Program. Therefore, the No Build Alternative could result in air quality impacts and potential additional noise impacts on the surrounding land uses, which could disrupt established communities adjacent to existing transportation corridors. However, disruption of established communities related to construction and operation of the Program would be avoided.

6.3 Build Alternative Options 1, 2, and 3

6.3.1 Rail Operational Effects

Construction

Western Section. The Western Section would utilize existing rail infrastructure, and no additional track improvements would be required to accommodate the proposed service. No new stations or construction to existing stations would be required to accommodate the proposed service. As such,

transportation impacts as a result of construction are not anticipated under Build Alternative Options 1, 2, and 3 when compared with the No Build Alternative.

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 all train operations through a work zone or the suspension of operations on specific tracks within a work zone during scheduled periods of construction, such as when new turnouts are being installed for sidings, station tracks, or interlockings. This condition also would cause delays to freight and passenger service on the line. Track outages and construction-related speed restrictions would occur when adding new siding tracks, double-tracking, upgrading signals, constructing stations and station tracks, or modifying grade crossings. During construction of any of the Build Alternative Options, temporary shoo-fly trackage[2] may need to be installed for longer disruptions; 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.

The duration and frequency of work windows/curfews allowed by UP depends on existing and projected train volumes, UP maintenance activities and other corridor-specific variables. The variability of conditions would make it difficult for UP to establish a policy regarding acceptable track outages for construction. UP released a white paper titled “Best Practices: Coordinating with Union Pacific in Alternative Delivery Projects” dated April 23, 2018. This white paper provides insights on the limitations that UP places on work windows. In the context of best management practices, the white paper states that “A unique characteristic of rail related work is that trains cannot simply be re-routed to deal with unexpected project delays or changes. In general, getting curfews of more than a few hours per day or week is difficult on most of UP’s network.” Given the foregoing statement, an extensive planning effort would precede any railroad construction project.

Operation

Western Section. Passenger train frequencies proposed as part of the Program would consist of adding four daily one-way trips (two daily round-trips) operating the entire length of the Program Corridor between Los Angeles and Indio and/or Coachella. Current (2018) daily rail traffic volumes on the Western Section (as shown in Chapter 2 of the Tier 1/Program EIS/EIR) vary by segment (RCTC and FRA 2021). The highest density segment is between Los Angeles and Fullerton and has

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

an average of 86 daily trains, while the lowest density segment is between Fullerton and Atwood and has an average of 43 daily trains. An additional two daily round-trip intercity passenger trains, even when compared with the lowest density segment, would represent a 9-percent increase in train activity compared with current (2018) traffic volume along the existing railroad right-of-way. In 2024 and 2044, the Program would add the same number of rail operations to opening and future year conditions. Therefore, the Program's effects in 2024 (as shown in Chapter 2 of the Tier 1/Program EIS/EIR) and 2044 (as shown in Chapter 2 of the Tier 1/Program EIS/EIR) would be lower than those evaluated under existing conditions for the lowest density segment.

Additionally, infrastructure estimates and rail operations impact assessments are not required for the Western Section of the Build Alternative Options between Soto interlocking (Milepost 144.4) 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 Alternatives Analysis (summarized in Chapter 2 of the 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 Options 1, 2, and 3.

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 subsequent 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 Options 2 and 3 would have slightly reduced effects due to a shorter route alignment and reduced station options. However, the same magnitude of effects would be similar for Build Alternative Option 2 and 3 and would be considered moderate when compared with the No Build Alternative.

6.3.2 Roadway and Vehicular Traffic Effects

Construction

Western Section. The Western Section would utilize existing rail infrastructure, and no additional track improvements would be required to accommodate the proposed service. No new stations or construction to existing stations would be required to accommodate the proposed service. As such, transportation impacts as a result of construction are not anticipated under Build Alternative Options 1, 2, and 3 when compared with the No Build Alternative.

Eastern Section. While the exact construction zones cannot be determined at the Tier 1/Program EIS/EIR level, temporary lane closures or roadway closures and additional traffic impacts would likely be involved in construction of track and station improvements under Build Alternative Options 1, 2, and 3. 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 2021). Once site specifics associated with the rail infrastructure improvement or station facility are known, the Tier 2/Project-level analysis would identify and evaluate where temporary road closures and traffic detours would be needed. Mitigation strategies that require the preparation and implementation of a site-specific transportation management plan would help minimize, avoid, 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. When compared with Build Alternative Option 1 or 2, Build Alternative Option 3 may have slightly reduced effects due to a slightly 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 all Build Alternative Options when compared with the No Build Alternative. Specific mitigation measures will need to be identified in the Tier 2/Project-level analysis; however, programmatic mitigation measures are outlined in Section 7.

Operation

Western and Eastern Section. During operation of the Program within 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.

Local Roadways

Of the potential station stops in the Program Corridor, four stations exist today, and the remaining five stations are potential new stations. The existing stations include LAUS, Fullerton, Riverside, and Palm Springs. Up to five new stations are proposed to serve market areas around Loma Linda/Redlands, Pass Area, Mid Valley, Indio, and Coachella. The effects of the Build Alternative Options on local roadways are presented in terms of local access, parking needs, and new auto trips to and from the stations. Effects are presented for Future Year (2044), when the ridership is expected to reach its maximum potential, and for the station option that provides six stations east of Colton to determine a conservative order of magnitude of effects.

MODE CHOICE FOR FORECAST PASSENGERS TO ACCESS REPRESENTATIVE STATIONS

Access streets around each station (existing and proposed) are likely to be affected because of additional auto traffic generated by patrons accessing and departing from each station along the Program Corridor. Since the Program is an intercity passenger rail service project, the 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). The mode choice results from the survey are summarized in Table 6-1 and Table 6-3, and details of the survey results are presented in Appendix D.

Table 6-1. Amtrak On-Board Survey Mode Choice Results (Pacific Surfliner)

Station Access Mode of Transportation	Mode to Boarding Station (%)	Mode from Alighting Station (%)	Average (%)
Drive alone and park	19.6	5.7	12.7
Carpool and park	7.3	3.2	5.2
Dropped off/picked up	39.1	38.6	38.9
Walk	5.9	11.5	8.7
Bicycle	0.9	0.7	0.8
Bus/rail transit	7.7	12.1	9.9
Connecting rail	1.6	2.8	2.2
Taxi/TNC*	13.1	18.9	16.0
Other	4.8	6.5	5.6
Total	100.0	100.0	100.0

Notes:

* TNC=transportation network company (such as Uber, Lyft)

Table 6-2. Amtrak On-Board Survey Mode Choice Results (San Joaquin)

Station Access Mode of Transportation	Mode to Boarding Station (%)	Mode from Alighting Station (%)	Average (%)
Drive alone and park	10.8	2.4	6.6
Carpool and park	4.4	2.5	3.5
Dropped off/picked up	51.8	56.6	54.2
Walk	5.9	10.1	8.0
Bicycle	0.6	1.0	0.8
Bus/rail transit	12.9	11.6	12.2
Connecting rail	2.0	2.8	2.4

Station Access Mode of Transportation	Mode to Boarding Station (%)	Mode from Alighting Station (%)	Average (%)
Taxi/TNC*	8.9	8.7	8.8
Other	2.7	4.3	3.5
Total	100.0	100.0	100.0

Notes:

* TNC=transportation network company (such as Uber, Lyft)

The access mode percentages from the Pacific Surfliner survey results were used as the basis to estimate passenger access mode to stations because the data for the Southern California rail corridor are more applicable for the Program Corridor. The average mode choice percentages from the Pacific Surfliner survey were adjusted to better reflect the access and surrounding land use characteristics of each station:

- For LAUS, because of the very high level of transit accessibility combined with the relative difficulty of accessing LAUS by auto and lack of passenger-generating land uses within walkable distance, the percentage of passengers accessing the service by bus and rail transit increased, while the percentages accessing by car, pick-up/drop-off, and walking reduced.
- For the Riverside station, because of the lack of passenger-generating land uses within walkable distance combined with the station's accessibility by auto, the percentage of passengers accessing the service by pick-up/drop-off increased, while the percentage accessing by walking reduced.
- For the Pass Area, Palm Springs, and Mid-Valley stations, because of the generally low levels of transit accessibility and lack of passenger-generating land uses within walkable distance of the rail line combined with those areas' accessibility by auto, the percentages of passengers accessing the service by pick-up/drop-off and by taxi/transportation network company (TNC)/shuttle increased, while the percentages accessing by walking and transit reduced.
- For the Indio and Coachella stations, because of the lack of passenger-generating land uses within walkable distance of the rail line combined with the areas' accessibility by auto, the percentage of passengers accessing the service by pick-up/drop-off increased, while the percentage accessing by walking reduced.

To account for these factors, adjustments to the passenger access mode percentages were made in increments of 5 percent (in the case of the Palm Springs station walking was reduced by the full 8.7 percent because there are no nearby passenger-generating land uses existing or planned). The resulting mode split percentages and estimates of passenger access mode for each station are summarized in Table 6-3 and Table 6-4.

Table 6-3. Rail Passenger Access Mode by Station (Percent of Train Passengers)

Percent of Train Passengers	LAUS (%)	Fullerton (%)	Riverside (%)	Loma Linda/ Redlands (%)	Pass Area (%)	Palm Springs (%)	Mid-Valley (%)	Indio (%)	Coachella (%)
In cars being parked	7.9	17.9	17.9	17.9	17.9	17.9	17.9	17.9	17.9
Dropped off/picked up	23.9	38.9	43.9	38.9	43.9	47.6	43.9	43.9	43.9
Walk	3.7	8.7	3.7	8.7	3.7	0.0	3.7	3.7	3.7
Bicycle	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Bus/rail transit	42.1	12.1	12.1	12.1	7.1	7.1	7.1	12.1	12.1
Taxi/TNC/shuttle	21.6	21.6	21.6	21.6	26.6	26.6	26.6	21.6	21.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Typical number of ons/offs per train	194	36	52	52	13	119	41	31	27

Notes:

The numbers in this row are not included in the count of total passengers at the bottom of the table. This row shows the number of vehicles being parked at the station that provide station access for the passengers who arrive “in cars being parked” (the row above).

LAUS=Los Angeles Union Station; TNC=transportation network company

This page is intentionally blank.

Table 6-4. Rail Passenger Access Mode by Station (Number of Passengers per Train)

Number of Passengers per Train	LAUS	Fullerton	Riverside	Loma Linda/ Redlands	Pass Area	Palm Springs	Mid-Valley	Indio	Coachella
In cars being parked	15	7	9	9	2	21	7	6	5
Number Of cars being parked*	*13*	*6*	*8*	*8*	*2*	*18*	*6*	*5*	*4*
Dropped off/picked up	46	14	23	20	6	57	18	13	12
Walk	7	3	2	5	1	0	2	1	1
Bicycle	2	0	1	1	0	1	0	0	0
Bus/rail transit	82	4	6	6	1	8	3	4	3
Taxi/TNC/shuttle	42	8	11	11	3	32	11	7	6
Total passengers	194	36	52	52	13	119	41	31	27

Notes:

The numbers in this row are not included in the count of total passengers at the bottom of the table. This row shows the number of vehicles being parked at the station that provide station access for the passengers who arrive “in cars being parked” (the row above).

LAUS=Los Angeles Union Station; TNC=transportation network company

This page is intentionally blank.

LOS ANGELES UNION STATION

As discussed in Section 5.3.5, access to LAUS is via Alameda Street, Vignes Street, and Cesar Chavez Avenue. The existing daily traffic volume is 27,950, 23,170, and 30,360, respectively (Los Angeles Department of Transportation 2016). Proposed passenger activity at LAUS would occur during both peak (3:20 p.m., 6:40 p.m.) and off-peak (10:20 a.m., 12:40 p.m.) periods. In 2044, for the station option with six stations east of Colton, the Build Alternative Options are estimated to add up to 189 vehicle trips per train to the surrounding street system and 756 vehicle trips daily.

FULLERTON

Access to Fullerton station is provided via Harbor Boulevard, Santa Fe Avenue, Walnut Avenue, and Lemon Street. The existing daily traffic volume is 44,300 and 25,000 for Harbor Boulevard and Lemon Street, respectively (City of Fullerton 2015). Proposed passenger activity at Fullerton station would occur during both peak (3:55 p.m., 6:06 p.m.) and off-peak (10:55 a.m., 12:06 p.m.) periods. In 2044, for the station option with six stations east of Colton, the Build Alternative Options are estimated to add up to 50 vehicle trips to the surrounding street system, for each train that arrives/departs and 200 vehicle trips daily.

RIVERSIDE

Access to Riverside station is provided via Vine Street, 14th Street, and Commerce Street. The existing daily traffic volume for Vine Street and 14th Street is approximately 4,000 and 25,880, respectively (City of Riverside 2017). Proposed passenger activity at Riverside station would occur during both peak (4:39 p.m., 5:22 p.m.) and off-peak (11:22 a.m., 11:39 a.m.) periods. In 2044, for the station option with six stations east of Colton, the Build Alternative Options are estimated to add up to 76 vehicle trips to the surrounding street system, for each train that arrives/departs and a daily traffic volume of 304 vehicle trips.

LOMA LINDA/REDLANDS

The station at Loma Linda/Redlands is one of the five representative station locations in the Program Corridor for which specific location has not been identified during the Tier 1/Program EIS/EIR evaluation. Proposed passenger activity at Loma Linda/Redlands station would occur during both peak (4:59 p.m.) and off-peak (10:59 a.m., 11:59 a.m.) periods. In 2044, for the station option with six stations east of Colton, the Build Alternative Options are estimated to add up to 70 vehicle trips to the surrounding street system, for each train that arrives/departs, and 280 vehicle trips daily.

PASS AREA

The station in the Pass Area is one of the five representative station locations in the Program Corridor for which specific location has not been identified during the Tier 1/Program EIS/EIR evaluation. Proposed passenger activity at the Pass Area station would occur during both peak (4:20 p.m., 5:38 p.m.) and off-peak (10:20 a.m., 12:38 p.m.) periods. In 2044, for the station option with six stations east of Colton, the Build Alternative Options are anticipated to add up to 20 vehicle trips to the surrounding street system, for each train that arrives/departs, and 80 daily vehicle trips.

PALM SPRINGS

Access to Palm Springs station is provided through Indian Canyon Drive and Palm Springs Station Drive. The existing daily traffic volume is 15,470 for Indian Canyon Drive (City of Palm Springs 2017). Proposed passenger activity at Palm Springs station would occur during both peak (3:59 p.m., 6:02 p.m.) and off-peak (9:59 a.m., 1:02 p.m.) periods. In 2044, for the station option with six stations east of Colton, the Build Alternative Options are estimated to add up to 194 vehicle trips to these streets, for each train that arrives/departs, and 776 vehicle trips daily.

MID VALLEY

The station in the Mid Valley area is one of the five representative station locations in the Program Corridor for which specific location has not been identified during the Tier 1/Program EIS/EIR evaluation. Proposed passenger activity at the Mid Valley station would occur during both peak (3:45 p.m., 6:14 p.m.) and off-peak (9:45 a.m., 1:14 p.m.) periods. In 2044, for the station option with six stations east of Colton, the Build Alternative Options are estimated to add up to 64 vehicle trips to the surrounding street system, for each train that arrives/departs, and 256 vehicle trips daily.

INDIO

The station in Indio is one of the five representative station locations in the Program Corridor. This station is proposed to be integrated with the existing Indio Transportation Center, which is accessed via Indio Boulevard. Daily traffic on Indio Boulevard is approximately 18,100 (County of Riverside Transportation Department 2014). Proposed passenger activity at the Indio station would occur during both peak (3:32 p.m., 6:30 p.m.) and off-peak (9:32 a.m., 1:30 p.m.) periods. In 2044, for the station option with six stations east of Colton, the Build Alternative Options are anticipated to add up to 47 vehicle trips to the surrounding street system, for each train that arrives/departs, and 188 vehicle trips daily.

COACHELLA

The station in Coachella is one of the five representative station locations in the Program Corridor for which specific location has not been identified during the Tier 1/Program EIS/EIR evaluation. Proposed passenger activity at the Coachella station would occur during both peak (3:25 p.m., 6:38 p.m.) and off-peak (9:25 a.m., 1:38 p.m.) periods. In 2044, for the station option with six stations east of Colton, the Build Alternative Options are estimated to add up to 40 vehicle trips to the surrounding street system, for each train that arrives/departs, and 160 daily vehicle trips.

Table 6-5 provides a summary of the potential roadways at each of the stations that could be affected during operation of the Program.

Table 6-5. Potential Roadway Impacts by Station within the Program Corridor 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 6-5, 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 6-6 and Table 6-7 present the anticipated annual and daily reduction of auto trips and VMT for each horizon year for the Build Alternative Options.

Table 6-6. 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 6-7. 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 reductions. The average trip length was calculated based on approximate distance between station pairs and their annual ridership. Based on the data presented in Table 6-6 and Table 6-7, 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 when compared with the No Build Alternative.

As summarized in Table 6-5, 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 6-6 and Table 6-7, 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.

6.3.3 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. In the Eastern Section, the Program Corridor between Colton and Coachella has 51 existing highway/rail crossings of which 2 at-grade crossings are within an existing quiet zone in the City of Loma Linda (see Section 5.3.5). 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 the 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 same 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.

6.3.4 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 construction 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 estimates were derived from a mode-share model developed by Caltrans and Amtrak for intercity rail modeling in California (and applied to the Rail Corridor, as described in the SDP (Chapter 5, Ridership and Revenue Forecasts). 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, leisure, etc.) and time of day when the trip began (morning, midday, afternoon/evening, and night time). The mode-share model accounted for an intercity rail's potential different weekday/weekend schedule and patron travel patterns, which in turn influences how a traveler makes choices on their travel modes based on the trip purpose. The mode-share model also evaluated the service attributes of each travel mode; in this case, auto or rail (including Amtrak Thruway bus) predicted the share of trips made by each mode. The trip volumes were then calculated by multiplying the predicted shares for each mode by the number of existing travelers between each origin and destination zone. The trip matrices of existing travelers between each origin and destination zone were obtained from AirSage[3] data. An overview of the mode-share model is included in Appendix C.

Ridership metrics depicted in Table 6-8 present the potential estimated demand of the proposed service for Build Alternative Option 1. Ridership metrics depicted in Table 6-9 present the potential estimated demand of the proposed service for Build Alternative Options 2 and 3. Passenger ridership is expected to increase annually from 3 percent to 4 percent based on the data presented in Table 6-8 and Table 6-9, 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 Los Angeles – San Diego – San Luis Obispo Rail Corridor.

[3] AirSage is a data provider that collects and analyzes individual cell phone location data and provides aggregated volumes of people traveling between two locations.

Table 6-8. 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; M=million

Table 6-9. 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; M=million

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 6-8 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 6-9 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).

As summarized in Table 6-10 and Table 6-11 below, on a station-by-station basis, 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. Figure 6-1 shows the representative station area location within the Tier 1/Program EIS/EIR Study Area.

Table 6-10. 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 6-11. 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**

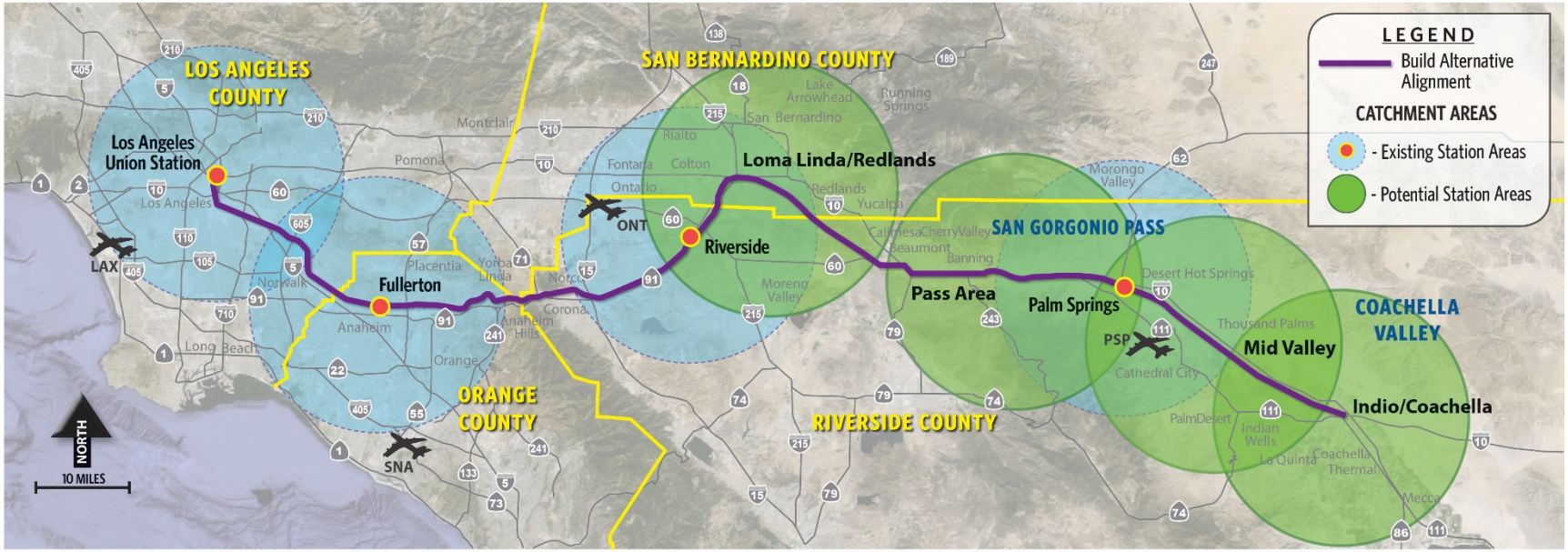
Source: Steer 2018

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.

Figure 6-1. Representative Station Area Locations within the Program Corridor



This page is intentionally blank.

6.3.5 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 6-12 and Table 6-13 summarize travel time for the different travel modes envisioned under the Build Alternative Options.

Table 6-12. 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 6-13. 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

Horizon Year	Mode of Travel	Average Travel Time (hour: minutes)	Average Travel Time Saving[d] (compared with Intercity Bus travel)
Opening Year (2024)	Passenger Rail	3:09	At least 1:32
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 6-12 and Table 6-13, 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.

6.3.6 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 6-14 and Table 6-15. 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 6-14. 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 6-15. 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

Accident Type	Existing Year (2018)	Opening Year (2024)	Future Year (2044)
Number of rail passenger accidents associated with the Program	2.30	2.68	4.45
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 6-14, 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 6-15, 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.

7 Tier 2 Environmental Review Considerations

The Tier 1/Program EIS/EIR evaluation provides an overview of potential impacts resulting from development of the Build Alternative Options. Specific station locations, Project design, and construction methods have not been determined.

Tier 2/Project-level analysis would address site-specific potential effects resulting from construction and operation of infrastructure improvements (such as sidings, additional main line track, wayside signals, drainage, grade-separation structures, and stations) when the site-specific locations and design requirements are known. The Tier 2/Project-level analysis would consider site-specific mitigation strategies that are acceptable to the communities that are impacted and are in sync with the circulation plans of the jurisdictions. Impacts of constructing track infrastructure and stations in the Eastern Section would also need to be evaluated in a Tier 2/Project-level analysis. Detailed analysis in a Tier 2/Project-level analysis would be required to determine the extent of impact and specific mitigation measures. For the Tier 2/Project-level analysis, the following guidelines/thresholds would be used to identify significant impacts:

- **Regional highways:** For impacts on regional highways CEQA Guidelines would be used to determine transportation impacts consistent with the implementation of SB 743.
- **Local roadways:** LOS/delay analysis at the intersection level consistent with each jurisdictions' traffic impact analysis guidelines would be used for impacts on local roadways.
- **Rail operations:** The Project SDP would identify Project-level infrastructure needs that will enable the service to achieve on-time performance of 90 percent for intercity passenger rail service without degrading future freight rail operations in the Program Corridor.

Based on findings presented in Section 6, proposed programmatic mitigation strategies, consistent with state and federal regulations, could include, but are not limited to, the following:

- 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)

8 References

Amtrak. 2017. *Amtrak Sustainability Report FY2016-FY2017.* Accessed July 2018. https://www.amtrak.com/content/dam/projects/dotcom/english/public/documents/environmental1/2016-2017-Amtrak-Sustainability-Report.pdf.

——— 2018. *Amtrak System Timetable*. Accessed July 2018. https://www.amtrak.com/content/dam/projects/dotcom/english/public/documents/timetables/Amtrak-System-Timetable-060118.pdf.

California Department of Transportation (Caltrans). 2021. California Manual on Uniform Traffic Control Devices. Accessed May 7, 2021. https://dot.ca.gov/-/media/dot-media/programs/safety-programs/documents/ca-mutcd/rev6/camutcd2014-rev6.pdf.

City of Beaumont. 2016. *Staff Report: Addition of Fare Options for Commuter Link 120*. Accessed July 2018. http://beaumontca.gov/DocumentCenter/View/28250.

City of Fullerton. 2015. *Traffic Volumes.* Accessed July 2018. https://www.cityoffullerton.com/civicax/filebank/blobdload.aspx?blobid=23230.

City of Palm Springs. 2017. *24 Hour Volumes.* Accessed July 2018. http://www.palmsprings-ca.gov/home/showdocument?id=53068.

City of Riverside. 2017. *24 Hour Volume Counts.* Counts collected between 2007 and 2015. Accessed July 2018. https://www.cityoffullerton.com/civicax/filebank/blobdload.aspx?blobid=23230.

County of Riverside Transportation Department. 2014. *Traffic Counts – 2014.* Accessed July 2018. http://rctlma.org/Portals/7/documents/WEB%20COUNTS.pdf.

Federal Railroad Administration (FRA). 1999. *Procedures for Considering Environmental Impacts*. Section 14(n)(13). Accessed July 2018. https://www.transportation.gov/sites/dot.gov/files/docs/FRAEnvProcedures_FED_REG_Notice.pdf.

Federal Railroad Administration (FRA) Office of Safety Analysis. 2019. *Table 1.11 Grade Crossing Inventory and General Trespassing Statistics*. Last updated March 31, 2019. Accessed June 2019. https://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Query/AccidentByRegionStateCounty.aspx.

Riverside County Transportation Commission (RCTC) and Federal Railroad Administration (FRA). 2021. *Coachella Valley-San Gorgonio Pass Rail Corridor Service Program Environmental Impact Statement/Environmental Impact Report* (Draft). Prepared by HDR Engineering, Inc.

Los Angeles Department of Transportation. 2016. Traffic Counts. Counts collected in 2010-2012. http://ladot.lacity.org/node/576.

Southern California Association of Governments (SCAG). 2016. *The 2016-2040 Regional Transportation Plan/Sustainable Communities Strategies.* Accessed July 2018. http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS_03_ChallengesInAChangingRegion.pdf.

Southern California Regional Rail Authority. 2018. “Find the Nearest Station.” Accessed July 2018. https://www.metrolinktrains.com/rider-info/general-info/stations/.

San Francisco State University. 2017. *Amtrak California Survey Development, Onboard Passenger Rail Survey: Longitudinal Comparison of Four Rounds of Data*. Prepared for California Department of Transportation (Caltrans).

State of California Office of Planning and Research (OPR). 2013. *Updating Transportation Impacts Analysis in the CEQA Guidelines: Preliminary Discussion Draft of Updates to the CEQA Guidelines Implementing Senate Bill 743.* http://opr.ca.gov/docs/Final_Preliminary_Discussion_Draft_of_Updates_Implementing_SB_743_080614.pdf.

——— 2018. Technical Advisory on Evaluating Transportation Impacts in CEQA. http://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf.

Steer. 2018. *Overview of the Caltrans Mode Share Model Memo.* Caltrans Mode Share Model Project. Prepared for California Department of Transportation (Caltrans).

SunLine Transit Agency. 2017. ”Commuter Link 220 FAQ.” Accessed July 2018. https://www.sunline.org/commuter-link-220-faq.

Transportation Research Board. 2003. *Transit Capacity and Quality of Service Manual, 2nd Edition*. http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp100/part%200.pdf.

Union Station Los Angeles. n.d. Union Station Fact Sheet. http://www.unionstationla.com/user/pages/10.press-room/Union-Station-Los-Angeles-Fact-Sheet.pdf.

——— 2018. Union Station website. Accessed July 2018. http://www.unionstationla.com/visit.

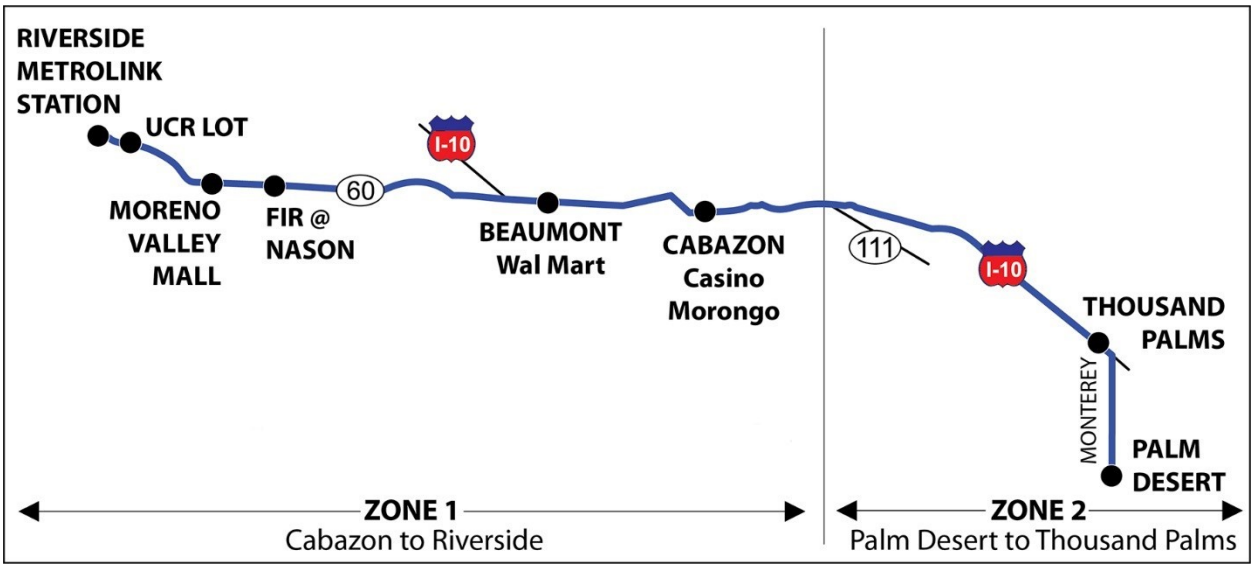
This page is intentionally blank.

.

Appendix A. Existing Passenger Bus and Rail Services

This page is intentionally blank.

Figure A-1 Sunline Commuter Link 220



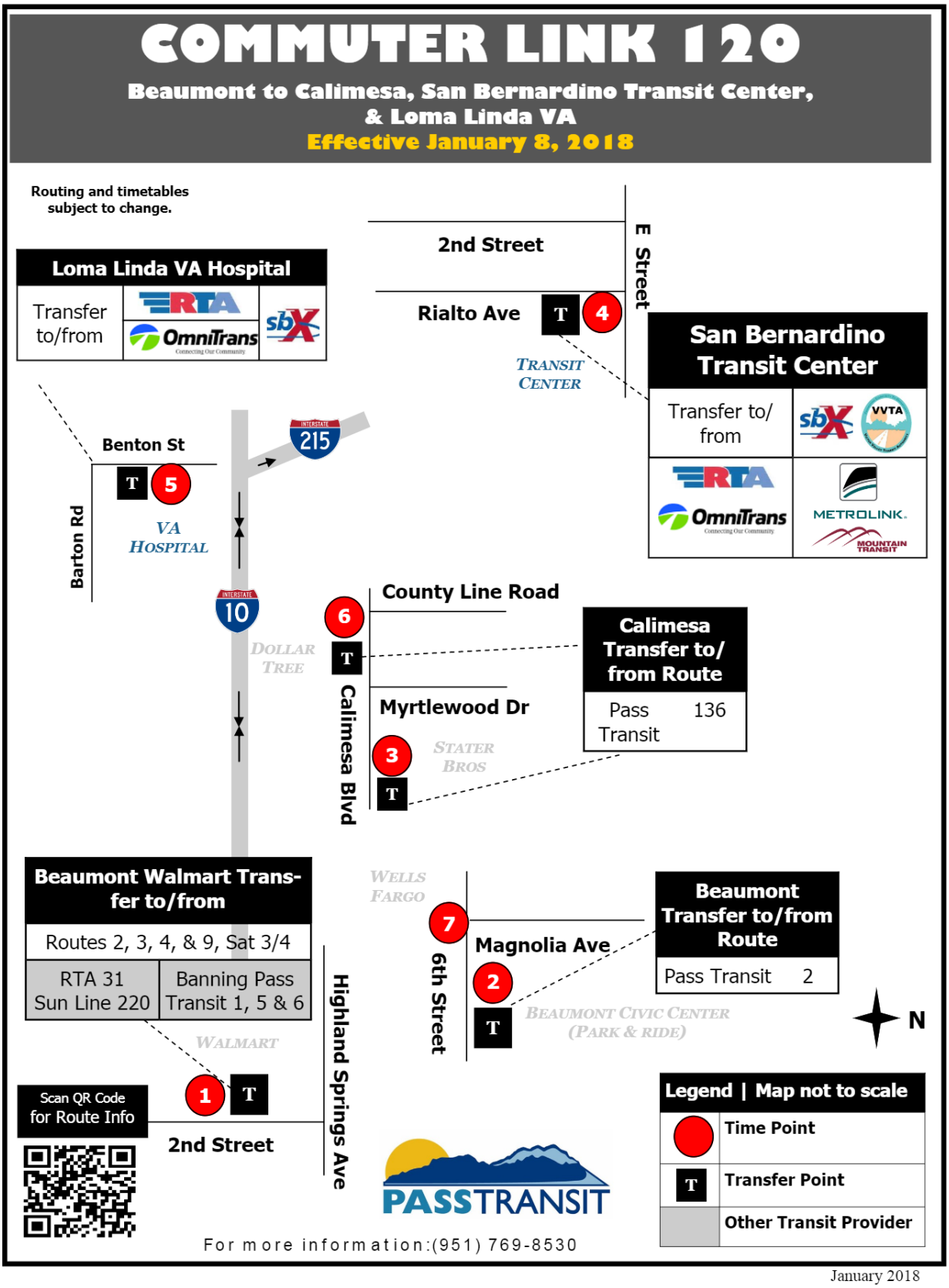
Source: SunLine Transit Agency 2017

Table A-1 Sunline commuter link 220 schedule

Eastbound Departure Time			Station	Westbound Departure Time		
8:15 a.m.	5:55 p.m.	7:15 p.m.	Riverside Metrolink Station	8:00 a.m.	10:15 a.m.	5:45 p.m.
8:29 a.m.	6:09 p.m.	7:29 p.m.	UCR Lot 30	7:50 a.m.	10:06 a.m.	5:35 p.m.
8:47 a.m.	6:27 p.m.	7:47 p.m.	Moreno Valley Mall	7:28 a.m.	9:50 a.m.	5:19 p.m.
9:01 a.m.	6:41 p.m.	8:01 p.m.	Moreno Valley Stonebridge Town Center	7:12 a.m.	9:36 a.m.	5:05 p.m.
9:24 a.m.	7:04 p.m.	8:24 p.m.	Beaumont	6:50 a.m.	9:11 a.m.	4:38 p.m.
9:41 a.m.	7:21 p.m.	8:41 p.m.	Cabazon/Morongo Casino	6:36 a.m.	8:53 a.m.	4:19 p.m.
10:15 a.m.	7:55 p.m.	9:15 p.m.	Thousand Palms	6:03 a.m.	8:17 a.m.	3:43 p.m.
10:31 a.m.	8:11 p.m.	9:31 p.m.	Palm Desert	5:50 a.m.	8:00 a.m.	3:25 p.m.

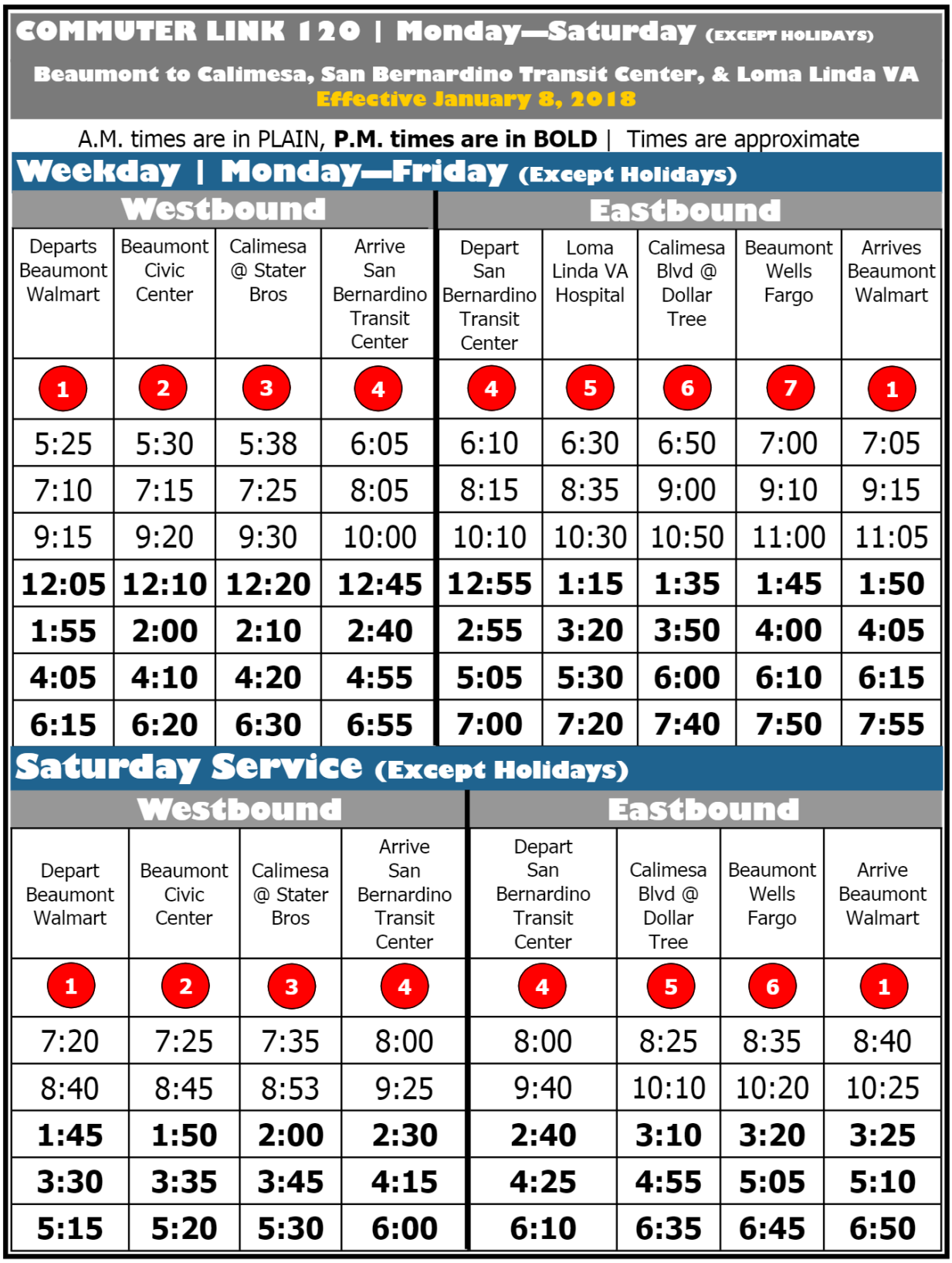
Source: SunLine Transit Agency 2017

Figure A-2 Pass Transit Commuter Link 120



Source: City of Beaumont 2016

Figure A-3 Pass Transit Commuter Link 120



COMMUTER LINK 120 | Monday—Saturday (EXCEPT HOLIDAYS)

Beaumont to Calimesa, San Bernardino Transit Center, & Loma Linda VA

Effective January 8, 2018

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Weekday | Monday—Friday (Except Holidays)

Westbound				Eastbound				
Departs Beaumont Walmart	Beaumont Civic Center	Calimesa @ Stater Bros	Arrive San Bernardino Transit Center	Depart San Bernardino Transit Center	Loma Linda VA Hospital	Calimesa Blvd @ Dollar Tree	Beaumont Wells Fargo	Arrives Beaumont Walmart
1	2	3	4	4	5	6	7	1
5:25	5:30	5:38	6:05	6:10	6:30	6:50	7:00	7:05
7:10	7:15	7:25	8:05	8:15	8:35	9:00	9:10	9:15
9:15	9:20	9:30	10:00	10:10	10:30	10:50	11:00	11:05
12:05	**12:10**	**12:20**	**12:45**	**12:55**	**1:15**	**1:35**	**1:45**	**1:50**
1:55	**2:00**	**2:10**	**2:40**	**2:55**	**3:20**	**3:50**	**4:00**	**4:05**
4:05	**4:10**	**4:20**	**4:55**	**5:05**	**5:30**	**6:00**	**6:10**	**6:15**
6:15	**6:20**	**6:30**	**6:55**	**7:00**	**7:20**	**7:40**	**7:50**	**7:55**

Saturday Service (Except Holidays)

Westbound				Eastbound			
Depart Beaumont Walmart	Beaumont Civic Center	Calimesa @ Stater Bros	Arrive San Bernardino Transit Center	Depart San Bernardino Transit Center	Calimesa Blvd @ Dollar Tree	Beaumont Wells Fargo	Arrive Beaumont Walmart
1	2	3	4	4	5	6	1
7:20	7:25	7:35	8:00	8:00	8:25	8:35	8:40
8:40	8:45	8:53	9:25	9:40	10:10	10:20	10:25
1:45	**1:50**	**2:00**	**2:30**	**2:40**	**3:10**	**3:20**	**3:25**
3:30	**3:35**	**3:45**	**4:15**	**4:25**	**4:55**	**5:05**	**5:10**
5:15	**5:20**	**5:30**	**6:00**	**6:10**	**6:35**	**6:45**	**6:50**

Source: City of Beaumont 2016

Figure A-4 San Joaquin Thruway Route Schedule

Bakersfield • Palm Springs • Indio • Hemet

702	710	712	714	San Joaquins Connecting Train Number			715		717	719	703
5402	5410	5412	5414	Thruway Number			***5415	***5465	5417	5419	5403
Daily	Daily	Daily	Daily		Days of Operation		Mo-Fr	SaSu	Daily	Daily	Daily
12 05P	1 55P	4 10P	6 55P	Dp	Bakersfield, CA–Amtrak Station	Ar	10 10A	10 10A	1 05P	3 30P	6 05P
D1 55P	D3 45P	D6 00P	D8 45P		La Crescenta, CA–I-210 Fwy./Honolulu & Lowell		R7 30A	R8 00A	R10 50A	R1 20P	R3 40P
D2 10P	D4 00P	D6 15P	D9 00P		Pasadena, CA–Hilton		R7 00A	R7 30A	R10 25A	R12 55P	R3 15P
D3 00P	D4 50P	D7 05P	D9 50P		Claremont, CA–Metrolink Station		R6 15A	R6 45A	R9 45A	R12 15P	R2 40P
D3 15P	D5 05P	**D7 20P	**D10 05P		Ontario, CA–Amtrak Station		R5 55A	R6 25A	R9 20A	R11 50A	R2 15P
D4 00P	*D5 55P	D8 10P	D10 30P		Riverside, CA–Metrolink Station		R5 30A	R6 00A	R8 55A	*R10 55A	R1 55P
MD3 40P	MD5 30P	D7 45P	D10 50P		San Bernardino, CA–Amtrak Station		5 10A	5 40A	MR8 35A	MR11 25A	MR1 35P
D4 40P		D8 50P			Cabazon, CA–Morongo Casino				R7 30A		R12 40P
D5 10P		D9 15P			Palm Springs, CA–Downtown SunLine Transit				R7 05A		R12 05P
D5 15P		D9 20P			Palm Springs, CA–Airport ✈				R7 00A		R11 59A
D5 45P		D9 45P			Palm Desert, CA–SunLine Transit Stop				R6 30A		R11 30A
D5 55P		D10 00P			La Quinta, CA–SunLine Transit Stop				R6 20A		R11 20A
6 05P		10 05P			Indio, CA–behind Denny's Restaurant				6 10A		11 10A
	D6 20P				Moreno Valley, CA–Metrolink Station					R10 30A	
	D6 35P				Perris, CA–Downtown Metrolink Station					R10 15A	
	D6 45P				Sun City/Menifee, CA–Menifee Comm. Cupbd.					R10 00A	
	D7 10P				Hemet, CA–3246 W. Florida Ave.					R9 35A	
	7 15P			Ar	–Simpson Center	Dp				9 25A	

M Meal and rest stop.
* Northbound Bus 5419 stops at Riverside before San Bernardino. Southbound Bus 5410 stops at Riverside after San Bernardino.
** Buses 5412 and 5414 also stop at Andy's Burgers in Ontario (late-night alternative stop).
*** Bus 5415 will not operate 7/4 and 9/4; Bus 5465 will also operate 7/4 and 9/4.

Source: Amtrak 2018

Figure A-5 Pacific Surfliner Thruway Route Schedule

Pacific Surfliner Thruway Bus Connections

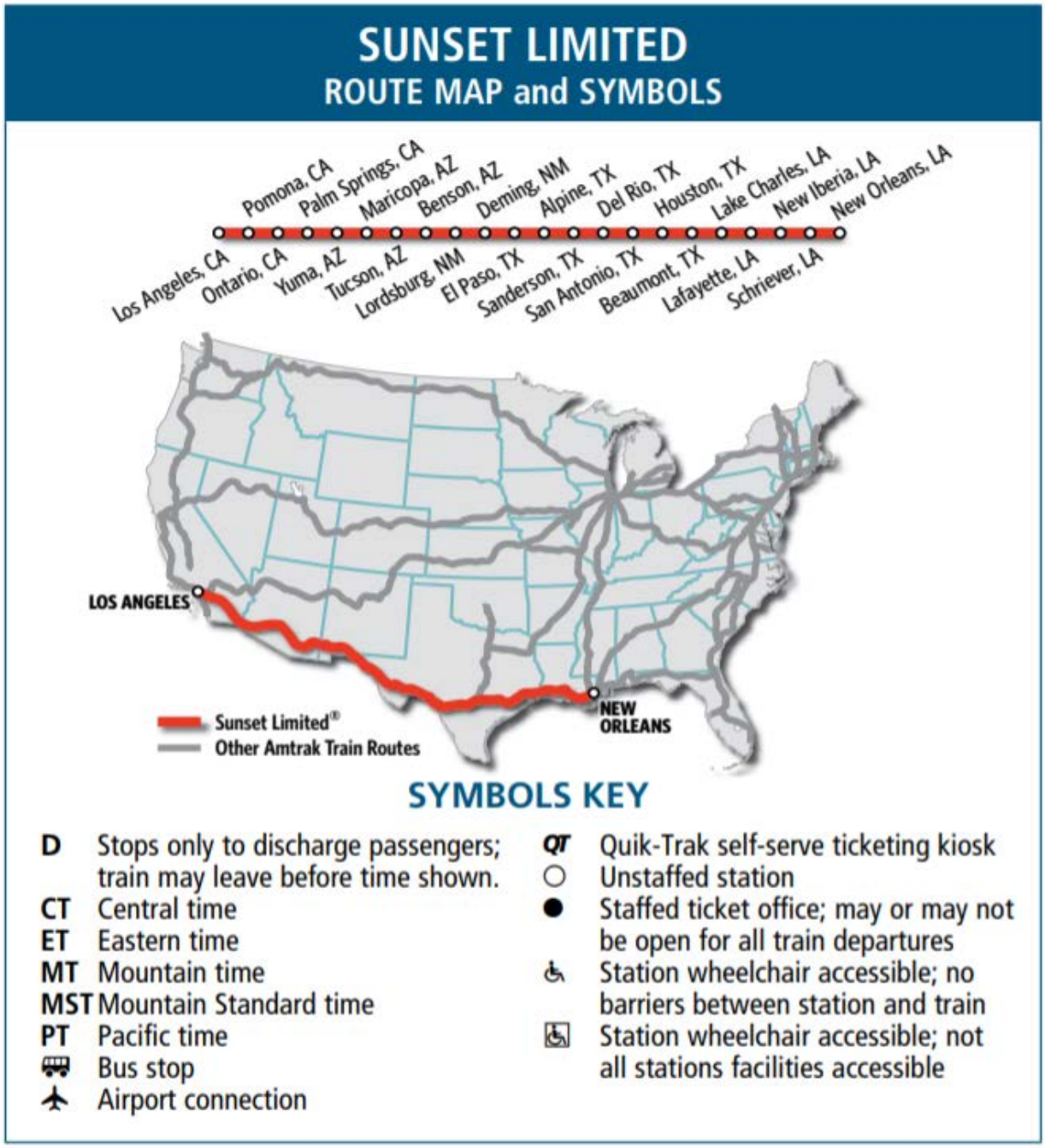
Fullerton • Palm Springs • Indio

768/572/769	782/584/583	Connecting Train Number			769/572	785/584
4968	4984	Thruway Number			4969	4985
Daily	Daily		Days of Operation		Daily	Daily
12 05P	5 55P	Dp	Fullerton, CA–Trans. Ctr.	Ar	11 15A	5 25P
D12 55P	D6 50P		Riverside, CA–Metrolink Station		R10 20A	R4 25P
D1 35P	D7 30P		Cabazon, CA–Morongo Casino		R9 30A	R3 35P
D2 00P	D8 00P		Palm Springs, CA –Downtown SunLine Transit		R9 00A	R3 10P
2 10P	D8 05P		Palm Springs, CA–Airport ✈		R8 55A	3 05P
	D8 35P		Palm Desert, CA–SunLine Transit		R8 25A	
	D8 45P		La Quinta, CA–SunLine Transit		R8 10A	
	8 55P	Ar	Indio, CA–Behind Denny's	Dp	8 00A	

NOTE—All *Pacific Surfliner* Thruway Bus Connections above require advance reservations and may only be booked with a connecting train trip.

Source: Amtrak 2018

Figure A-6 Amtrak Sunset Limited Map



Source: Amtrak 2018

Figure A-7 Amtrak Sunset Limited Schedule

SUNSET LIMITED®

Effective March 11, 2018

serving **NEW ORLEANS - HOUSTON - SAN ANTONIO - TUCSON - MARICOPA - LOS ANGELES** and intermediate stations

Amtrak.com
1-800-USA-RAIL

1 [20]	‹ Train Number ›					2 [20]
As indicated in column	‹ Normal Days of Operation ›					As indicated in column
R	‹ On Board Service ›					R
Read Down	Mile			Symbol		Read Up
9 00A MoWeSa	0	Dp	New Orleans, LA (CT) Baton Rouge—see page 2 Montgomery—see page 2		Ar	9 40P TuFrSu
10 30A MoWeSa	56		Schriever, LA (Houma/Thibodaux)			7 03P TuFrSu
11 56A MoWeSa	127		New Iberia, LA			5 41P TuFrSu
12 24P MoWeSa	145		Lafayette, LA			5 15P TuFrSu
1 55P MoWeSa	219		Lake Charles, LA			3 29P TuFrSu
3 48P MoWeSa	281		Beaumont, TX (Port Arthur)			2 05P TuFrSu
6 18P MoWeSa	363	Ar	Houston, TX		Dp	12 10P TuFrSu
6 55P MoWeSa		Dp	Galveston—see page 2		Ar	11 10A TuFrSu
12 05A TuThSu	573	Ar	San Antonio, TX		Dp	6 25A TuFrSu
12 45A TuThSu		Dp			Ar	4 50A TuFrSu
5 49A TuThSu	742		Del Rio, TX			1 02A TuFrSu
8 24A TuThSu	868		Sanderson, TX			10 36P MoThSa
10 38A TuThSu	959		Alpine, TX (Big Bend Nat'l. Park) (CT)			8 45P MoThSa
1 22P TuThSu	1178	Ar	El Paso, TX Las Cruces, (MT) Albuquerque—see page 2		Dp	3 35P MoThSa
1 47P TuThSu		Dp	(Ciudad Juarez, Mex.)		Ar	3 10P MoThSa
3 18P TuThSu	1264		Deming, NM			1 10P MoThSa
4 13P TuThSu	1325		Lordsburg, NM (MT)			12 15P MoThSa
[69] 5 18P TuThSu	1443		Benson, AZ (MST)			[69] 9 15A MoThSa
[69] 6 45P TuThSu	1493	Ar	Tucson, AZ	QT	Dp	[69] 8 15A MoThSa
[69] 7 35P TuThSu		Dp			Ar	[69] 7 28A MoThSa
[69] 8 52P TuThSu	1579	Ar	Maricopa, AZ		Dp	[69] 5 40A MoThSa
[69] 9 02P TuThSu		Dp	Phoenix—see page 2		Ar	[69] 5 30A MoThSa
[69] 11 49 TuThSu	1744		Yuma, AZ (MST)			[69] 2 47A MoThSa
2 02A WeFrMo	1890		Palm Springs, CA (PT)			12 36A MoThSa
D3 54A WeFrMo	1957		Ontario, CA			10 54P SuWeFr
D4 04A WeFrMo	1964		Pomona, CA			10 41P SuWeFr
5 35A WeFrMo	1995	Ar	Los Angeles, CA (PT)	QT	Dp	10 00P SuWeFr

SCHEDULES EFFECTIVE 3/11/18R

Service on the Sunset Limited

- R **Coaches: Reservations required.**
- **Sleeping cars:** Superliner sleeping accommodations.
  - Magnolia Room is available in New Orleans and Amtrak Metropolitan Lounge in Los Angeles for Sleeping car passengers.
- **Dining:** Full meal service.
- **Sightseer Lounge:** Sandwiches, snacks and beverages.
- Checked baggage at select stations.
- Trains 1 and 2: trainside checked bicycle service offered between staffed locations handling checked baggage. Customers will check in with the station agent, get a claim check/baggage tag for their bike, and hand up to a crew member inside the baggage car. Visit Amtrak.com/bikes for more information.
- [20] The *Sunset Limited* service between Orlando and New Orleans has been suspended. Future service has not been determined.
- [69] This location does not observe Daylight Saving Time. Time will be ONE HOUR LATER beginning with the fall time change on November 4, 2018.

All Amtrak services and stations are non-smoking.

Trails and Rails Program: In cooperation with the National Park Service, volunteer rangers provide on board narratives between May and September on selected days over parts of this route. Visit nps.gov/trailsandrails and amtraktoparks.com.

SHADING KEY

Overnight train

See page 2 for Thruway Connections.

Source: Amtrak 2018

Appendix B. Conceptual Train Schedules

This page is intentionally blank.

Table B-1 Los Angeles – Indio: Three Stops East of Colton

Eastbound: Read Down		Miles	Station	Miles	Westbound: Read Up	
750	752		Tran No.		751	753
10:20 a.m.	3:20 p.m.	0	Los Angeles	141	12:40 p.m.	6:40 p.m.
10:55 a.m.	3:55 p.m.	26	Fullerton	115	12:06 p.m.	6:06 p.m.
11:39 a.m.	4:39 p.m.	62	Riverside	79	11:22 a.m.	5:22 p.m.
12:37 p.m.	5:37 p.m.	103	Pass Area*	38	10:20 a.m.	4:20 p.m.
12:58 p.m.-L	5:58 p.m.-L	118	Palm Springs	23	10:00 a.m.	4:00 p.m.
1:23 p.m.	6:23 p.m.	141	Indio*	0	9:38 a.m.	3:38 p.m.
3:03	**3:03**		**Travel Time**		**3:02**	**3:02**

L = Train may leave in advance of time shown
* Proposed New Stations

Table B-2 Los Angeles – Coachella: Four Stops East of Colton

Eastbound: Read Down		Miles	Station	Miles	Westbound: Read Up	
750	752		Tran No.		751	753
10:20 a.m.	3:20 p.m.	0	Los Angeles	144	12:40 p.m.	6:40 p.m.
10:55 a.m.	3:55 p.m.	26	Fullerton	118	12:06 p.m.	6:06 p.m.
11:39 a.m.	4:39 p.m.	62	Riverside	82	11:22 a.m.	5:22 p.m.
12:37 a.m.	5:37 p.m.	103	Pass Area*	41	10:20 a.m.	4:20 p.m.
12:58 p.m.-L	5:58 p.m.-L	118	Palm Springs	26	10:00 a.m.	4:00 p.m.
1:23 p.m.-L	6:23 p.m.-L	141	Indio*	3	9:38 a.m.	3:38 p.m.
1:28 p.m.	6:28 p.m.	144	Coachella*	0	9:33 a.m.	3:33 p.m.
3:08	**3:08**		**Travel Time**		**3:07**	**3:07**

L = Train may leave in advance of time shown
*Proposed New Stations

Table B-3 Los Angeles – Indio: Five Stops East of Colton

Eastbound: Read Down		Miles	Station	Miles	Westbound: Read Up	
750	752		Tran No.		751	753
10:20 a.m.	3:20 p.m.	0	Los Angeles	141	12:40 p.m.	6:40 p.m.
10:55 a.m.	3:55 p.m.	26	Fullerton	115	12:06 p.m.	6:06 p.m.
11:39 a.m.	4:39 p.m.	62	Riverside	79	11:22 a.m.	5:22 p.m.
11:59 a.m.	5:04 p.m.	72	Loma Linda*	69	10:58 a.m.	4:58 p.m.
12:39 p.m.	5:44 p.m.	103	Pass Area*	38	10:18 a.m.	4:18 p.m.
1:01 p.m.	6:06 p.m.	118	Palm Springs	23	9:58 a.m.	3:58 p.m.
1:13 p.m.-L	6:18 p.m.-L	128	Mid Valley*	13	9:45 a.m.	3:45 p.m.
1:29 p.m.	6:34 p.m.	141	Indio*	0	9:32 a.m.	3:32 p.m.
3:09	**3:14**		**Travel Time**		**3:08**	**3:08**

L = Train may leave in advance of time shown
*Proposed New Stations

Table B-4 Los Angeles – Coachella: Six Stops East of Colton

Eastbound: Read Down		Miles	Station	Miles	Westbound: Read Up	
750	752		Tran No.		751	753
10:20 a.m.	3:20 p.m.	0	Los Angeles	144	12:40 p.m.	6:40 p.m.
10:55 a.m.	3:55 p.m.	26	Fullerton	118	12:06 p.m.	6:06 p.m.
11:39 a.m.	4:39 p.m.	62	Riverside	82	11:22 a.m.	5:22 p.m.
11:59 a.m.	5:04 p.m.	72	Loma Linda*	72	10:58 a.m.	4:58 p.m.
12:39 p.m.	5:44 p.m.	103	Pass Area*	41	10:18 a.m.	4:18 p.m.
1:01 p.m.	6:06 p.m.	118	Palm Springs	26	9:58 a.m.	3:58 p.m.
1:13 p.m.-L	6:18 p.m.-L	128	Mid Valley*	16	9:44 a.m.	3:44 p.m.
1:29 p.m.-L	6:34 p.m.-L	141	Indio*	3	9:31 a.m.	3:31 p.m.
1:35 p.m.	6:40 p.m.	144	Coachella*	0	9:26 a.m.	3:26 p.m.
3:15	**3:20**		**Travel Time**		**3:14**	**3:14**

L = Train may leave in advance of time shown
*Proposed New Stations

Appendix C. Overview of Caltrans Mode-Share Model

This page is intentionally blank.

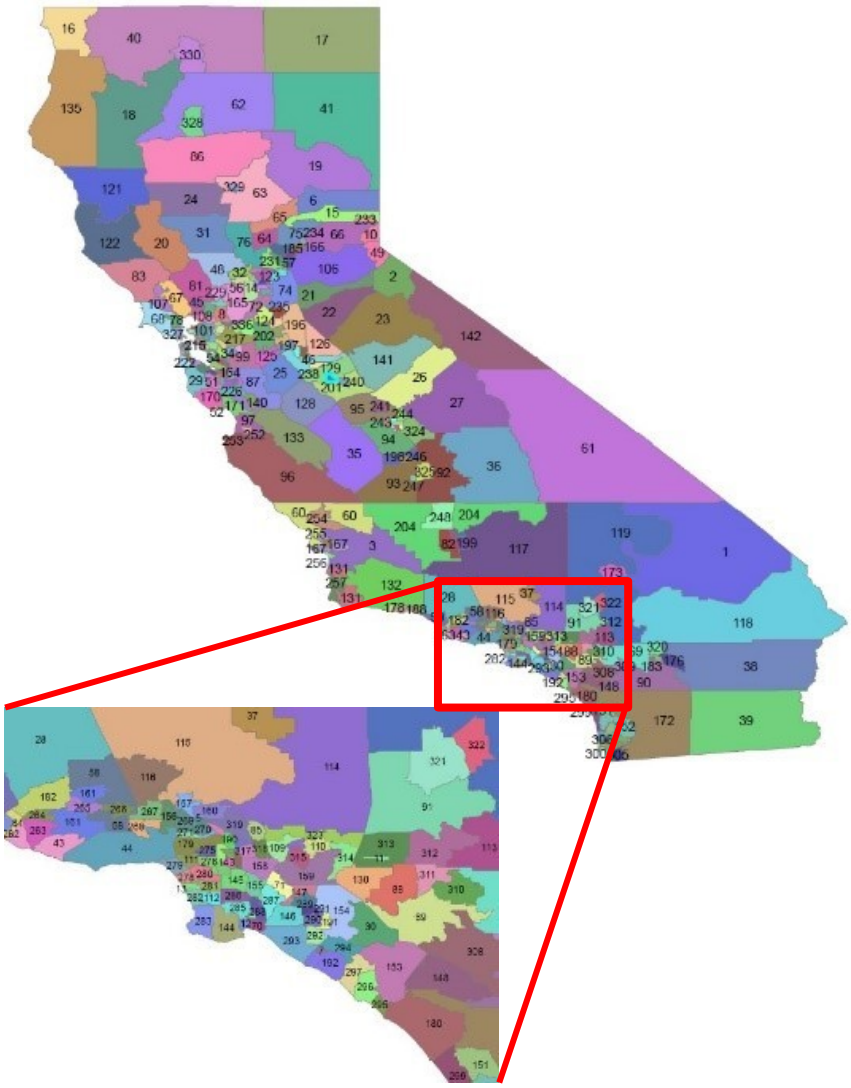
Overview of the Caltrans Mode Share Model

Source: Steer 2018

The mode share model forecasts ridership on the Amtrak California rail network at the zone pair level, using a system of 337 zones across the state. The geographical breakdown of the study area is travel analysis zones (referred to as “zones”) that cover the entire State of California and are aggregated from Census tract boundaries. As shown in **Figure 1**, the study are zones are smaller in denser, more populated areas and larger in sparsely populated areas.

The forecasting approach is applied separately for the average weekday and weekend across 12 travel market segments—based on a combination of trip purpose (business, commute, and leisure) and time of day the trip begins (morning, midday, afternoon/evening, and night time). The model is segmented by these factors because: 1) the Amtrak schedule is different during the weekday and weekend for some routes; 2) travel patterns (e.g. congestion) are different by time of day; and 3) how people make travel choices is very much influenced by their trip purpose.

Figure 1: Study Area Zones



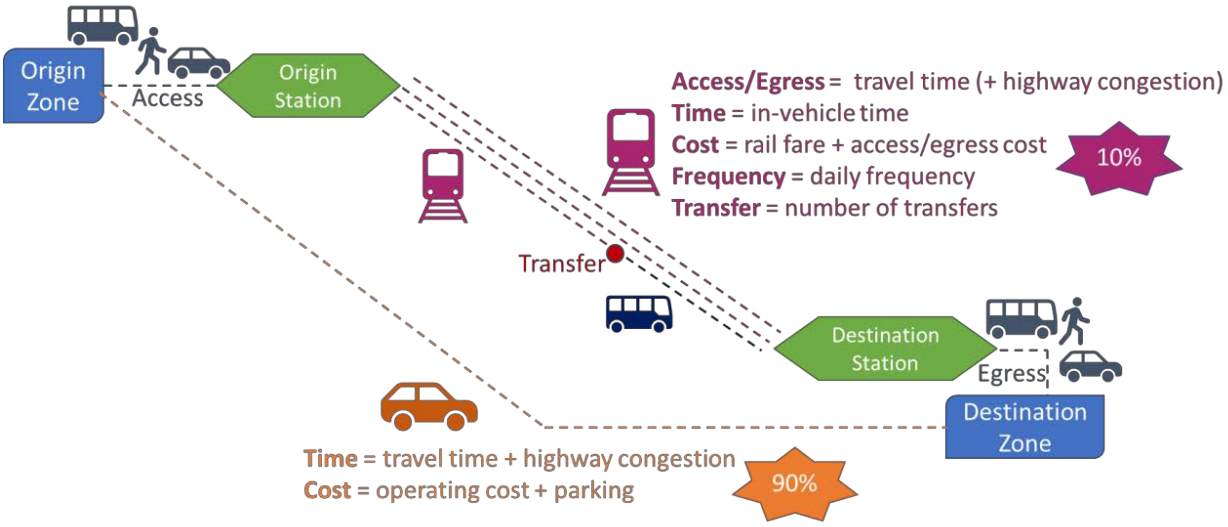
The mode share model is appropriate for testing the impact of service changes, including those that are transformational in nature and capture new travel market segments not currently served (e.g. dramatic changes in train frequency, service in times of day which previously had no train service, introduction of service to completely new geographies).

The mode share model evaluates the service attributes of each travel mode, in this case, auto or rail (including Thruway bus) and predicts the share of trips made by each mode. The trip volumes are then calculated by multiplying the predicted shares for each mode by the number of existing travelers

between each origin and destination zone. The trip matrices of existing travelers between each origin and destination zone were obtained from AirSage[1].

As shown in **Figure 2**, for a given origin-destination (OD) zone pair, the model considers the auto mode and calculates level of service characteristics such as drive time including highway congestion, operating cost of the car and parking costs at the destination. Similarly, for the available rail and Thruway bus options, the model considers drive, walk and transit access time and costs from the origin zone to the nearest rail stations. It also considers in-vehicle time and rail fares from the origin to destination station, as well as frequency of the rail service; in the case of Thruway buses, the number of transfers involved in traveling from the origin station to the destination station. On the destination end, the model considers drive, walk and transit egress time and costs from the destination station to the final destination zone. As shown in the example in **Figure 2**, the model uses the various service attributes to predict that 90 percent of trips between this given zone pair would be made by auto and 10 percent by rail and Thruway bus2[2]. The rail ridership is then calculated by multiplying the rail share by the volume of eligible people traveling between the OD pair.

Figure 2: Mode-Share Model Representation



Most of the Amtrak rail services that are evaluated in the mode share model have been in operation for some time. A model even at its best can never replicate existing ridership levels at individual station pairs. Thus, consistent with established/accepted practice in demand modeling, the final station pair-level rail ridership numbers are obtained by incrementally applying the mode share model changes between the baseline service and the proposed service to the Amtrak rail ridership for the most recent fiscal year.

[1] AirSage is a data provider that collects and analyzes individual cell phone location data and provides aggregated volumes of people traveling between two locations.

[2] Model behavioral parameters (e.g., value of time) were asserted based on existing literature and professional judgement.

Appendix D. Amtrak Onboard Passenger Survey, Travel Mode Choice Data, June 2017

This page is intentionally blank.

Figure D-1 Pacific Surfliner – Travel Mode Choice to Origin Station

Table 124. Pacific Surfliner: Transportation to Starting Station or Amtrak Bus Stop

	JanFeb16	JunJul16	SepDec16	JanFeb17		JanFeb16	JunJul16	SepDec16	JanFeb17	
	#				Total	%				Total
DROVE ALONE AND PARKED	132	117	54	39	342	28%	21%	22%	13%	22%
CARPOOLED AND PARKED	40	48	16	22	126	8%	9%	7%	7%	8%
WERE DROPPED OFF BY FRIEND OR FAMILY	168	235	112	129	644	35%	43%	46%	41%	41%
WALKED	31	28	13	25	97	6%	5%	5%	8%	6%
RODE A BICYCLE	6	8	1	2	17	1%	1%	0%	1%	1%
RODE BUS TRANSIT	30	17	15	4	66	6%	3%	6%	1%	4%
USED RAIL TRANSIT (e.g., BART, Sprinter. light rail, subway)	20	17	8	17	62	4%	3%	3%	5%	4%
USED CONNECTING COMMUTER RAIL (e.g., COASTER, Metrolink, Caltrain, ACE)	7	4	1	4	16	1%	1%	0%	1%	1%
USED CONNECTING AMTRAK TRAIN (e.g., Coast Starlight)	3	2	2	3	10	1%	0%	1%	1%	1%
USED TAXI SERVICE (e.g., Uber, Lyft, yellow cab)	56	76	33	50	215	12%	14%	13%	16%	14%
USED AIR TRAVEL	12	9	6	9	36	3%	2%	2%	3%	2%
USED OTHER	12	25	1	10	48	3%	5%	0%	3%	3%
Respondents	478	545	246	312	1,581	100%	100%	100%	100%	100%

Caltrans Passenger Rail Onboard Survey: Fourth Round 147

Source: San Francisco State University 2017

Figure D-2 Pacific Surfliner – Travel Mode Choice from Destination Station

Table 125. Pacific Surfliner: Transportation from Final or Most Distant Station or Amtrak Bus Stop

	JanFeb16	JunJul16	SepDec16	JanFeb17		JanFeb16	JunJul16	SepDec16	JanFeb17	
	#				Total	%				Total
DRIVE ALONE	33	30	15	18	78	7%	6%	6%	6%	6%
CARPOOL	15	20	10	9	45	3%	4%	4%	3%	4%
GET PICKED UP BY FRIEND OR FAMILY	182	231	98	134	511	38%	44%	41%	45%	41%
WALK	64	70	34	28	168	13%	13%	14%	9%	13%
RIDE A BICYCLE	5	8	0	1	13	1%	2%	0%	0%	1%
USE BUS TRANSIT	47	32	23	15	102	10%	6%	10%	5%	8%
USE RAIL TRANSIT (e.g., BART, Sprinter. light rail, subway)	30	32	9	17	71	6%	6%	4%	6%	6%
USE CONNECTING COMMUTER RAIL (e.g., COASTER, Metrolink, Caltrain, ACE)	13	17	3	2	33	3%	3%	1%	1%	3%
USE CONNECTING AMTRAK TRAIN (e.g., Coast Starlight)	8	9	3	0	20	2%	2%	1%	0%	2%
USE TAXI SERVICE (e.g., Uber, Lyft, yel-low cab)	78	96	60	67	234	16%	18%	25%	22%	19%
USE AIR TRAVEL	9	10	9	10	28	2%	2%	4%	3%	2%
USE OTHER	21	27	2	10	50	4%	5%	1%	3%	4%
I DON'T KNOW	5	14	0	0	19	1%	3%	0%	0%	2%
Respondents	478	530	239	298	1,247	100%	100%	100%	100%	100%

Source: San Francisco State University 2017

Figure D-3 San Joaquin – Travel Mode Choice to Origin Station

Table 72. San Joaquins: Transportation to Starting Station or Amtrak Bus Stop

	JanFeb16	JunJul16	SepDec16	JanFeb17		JanFeb16	JunJul16	SepDec16	JanFeb17	
	#				Total	%				Total
DROVE ALONE AND PARKED	34	26	33	22	115	15%	10%	12%	9%	12%
CARPOOLED AND PARKED	12	10	20	6	48	5%	4%	7%	2%	5%
WERE DROPPED OFF BY FRIEND OR FAMILY	124	136	132	162	554	54%	54%	49%	66%	56%
WALKED	19	14	11	18	62	8%	6%	4%	7%	6%
RODE A BICYCLE	1	2	4	0	7	0%	1%	1%	0%	1%
RODE BUS TRANSIT	16	30	27	2	75	7%	12%	10%	1%	8%
USED RAIL TRANSIT (e.g., BART, Sprinter. light rail, subway)	8	16	17	23	64	3%	6%	6%	9%	6%
USED CONNECTING COMMUTER RAIL (e.g., COASTER, Metrolink, Caltrain, ACE)	1	0	3	3	7	0%	0%	1%	1%	1%
USED CONNECTING AMTRAK TRAIN (e.g., Coast Starlight)	1	5	7	2	15	0%	2%	3%	1%	2%
USED TAXI SERVICE (e.g., Uber, Lyft, yellow cab)	22	22	32	20	96	10%	9%	12%	8%	10%
USED AIR TRAVEL	0	2	3	3	8	0%	1%	1%	1%	1%
USED OTHER	7	6	3	5	21	3%	2%	1%	2%	2%
Respondents	230	250	267	247	994	100%	100%	100%	100%	100%

Source: San Francisco State University 2017

Figure D-4 San Joaquin – Travel Mode Choice to Destination Station

Table 125. Pacific Surfliner: Transportation from Final or Most Distant Station or Amtrak Bus Stop

	JanFeb16	JunJul16	SepDec16	JanFeb17		JanFeb16	JunJul16	SepDec16	JanFeb17	
	#				Total	%				Total
DRIVE ALONE	33	30	15	18	78	7%	6%	6%	6%	6%
CARPOOL	15	20	10	9	45	3%	4%	4%	3%	4%
GET PICKED UP BY FRIEND OR FAMILY	182	231	98	134	511	38%	44%	41%	45%	41%
WALK	64	70	34	28	168	13%	13%	14%	9%	13%
RIDE A BICYCLE	5	8	0	1	13	1%	2%	0%	0%	1%
USE BUS TRANSIT	47	32	23	15	102	10%	6%	10%	5%	8%
USE RAIL TRANSIT (e.g., BART, Sprinter. light rail, subway)	30	32	9	17	71	6%	6%	4%	6%	6%
USE CONNECTING COMMUTER RAIL (e.g., COASTER, Metrolink, Caltrain, ACE)	13	17	3	2	33	3%	3%	1%	1%	3%
USE CONNECTING AMTRAK TRAIN (e.g., Coast Starlight)	8	9	3	0	20	2%	2%	1%	0%	2%
USE TAXI SERVICE (e.g., Uber, Lyft, yel-low cab)	78	96	60	67	234	16%	18%	25%	22%	19%
USE AIR TRAVEL	9	10	9	10	28	2%	2%	4%	3%	2%
USE OTHER	21	27	2	10	50	4%	5%	1%	3%	4%
I DON'T KNOW	5	14	0	0	19	1%	3%	0%	0%	2%
Respondents	478	530	239	298	1,247	100%	100%	100%	100%	100%

Source: San Francisco State University 2017