2 Program Alternatives

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

In accordance with NEPA (42 USC Section 4321 et seq.), CEQ regulations implementing NEPA (40 CFR Parts 1501-1508), FRA's Procedures for Considering Environmental Impacts (64 FR 28545, May 26, 1999) and CEQA, a reasonable range of alternatives were evaluated in this Tier 1/Program EIS/EIR.

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

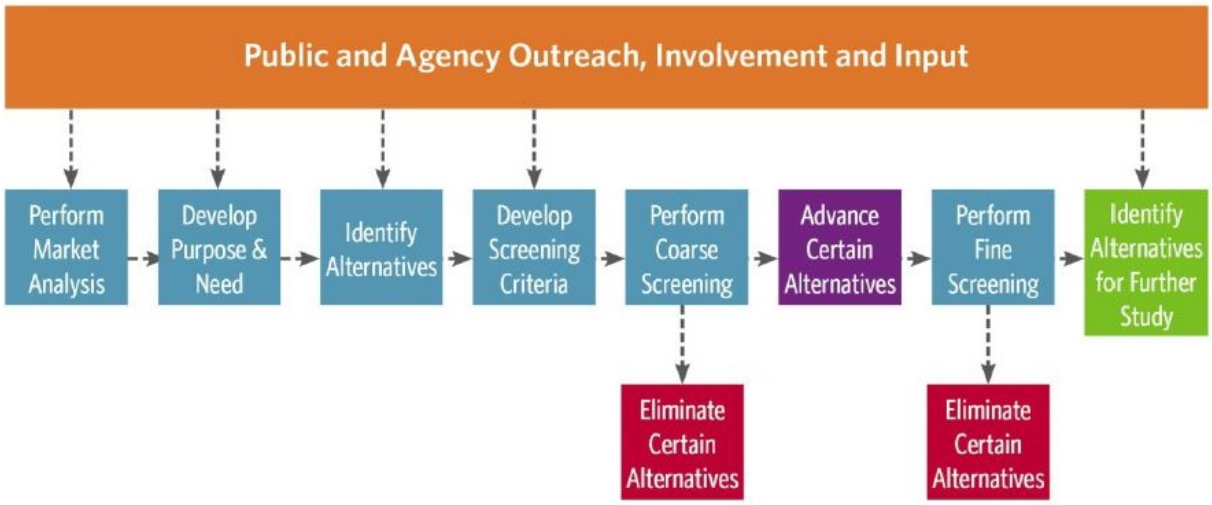
This chapter describes the alternatives selection process used to identify and evaluate the No Build Alternative and the Build Alternative Options for the Program for purposes of NEPA and CEQA. The 2016 AA Report included an evaluation of a reasonable range of alternatives for implementation of daily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

2.1 Alternatives Selection Process

2.1.1 2016 Alternatives Analysis Report Screening and Selection Process

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

Figure 2-1. Alternatives Analysis Process

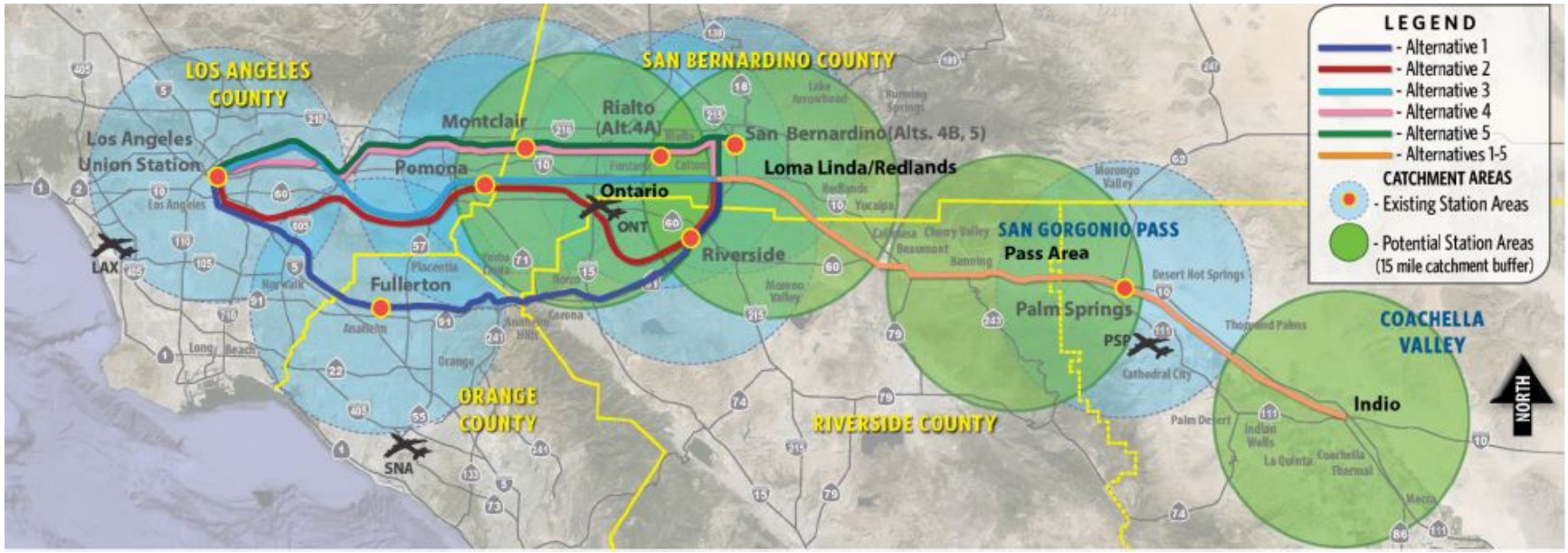


Study Area and Route Alternatives Studied in the Alternatives Analysis Report

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

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

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



Source: RCTC 2016

Notes:

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

Notes:

AA=Alternatives Analysis

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

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

Source: RCTC 2016

Notes:

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

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

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

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

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

Route Alternative 4 proposed the use of the SCRRA San Gabriel Subdivision (owned by Metro) and the San Bernardino County Transportation Authority[1] (SBCTA) from LAUS to San Bernardino, the SCRRA Short Way Subdivision from San Bernardino to Colton, and the UP Yuma Subdivision from Colton to Indio. Route Alternative 4 had two variations between Los Angeles and San Bernardino, as described below:

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

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

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

Existing and Potential Station Locations Considered

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

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

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

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

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

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

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

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

Source: RCTC 2016

Notes:

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

AA=Alternatives Analysis; LAUS=Los Angeles Union Station

Screening Criteria

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

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

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

Screening Process

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

Figure 2-3. Alternatives Selection Process Flow Chart

Coarse-Level Route Alternative Screening

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

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

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

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

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

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

Fine-Level Route Alternative Screening

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

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

Table 2-3. Route Alternative Reasonability and Feasibility Summary

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

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

Source: RCTC 2016

Notes:

UP=Union Pacific Railroad

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

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

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

2.1.2 Scoping Comments Received Regarding Alternatives

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

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

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

2.2 CEQA Proposed Program

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

2.3 Alternatives Definition

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

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

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

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

2.3.1 No Build Alternative

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

Western Section

Current Service Frequency

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

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

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

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

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

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

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

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

Notes:

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

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

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

Current Speed and Reliability

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

Eastern Section

Current Service Frequency

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

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

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

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

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

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

Notes:

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

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

Current Speed and Reliability

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

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

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

Current Passenger Rail/Transit Service for Western and Eastern Sections

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

Table 2-6. Current Passenger Rail and Transit Services

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

Programmed and Planned Infrastructure

Western Section

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

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

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

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

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

Notes:

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

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

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

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

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

Notes:

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

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

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

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

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

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

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

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

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

Eastern Section

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

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

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

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

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

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

Notes:

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

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

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

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

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

Notes:

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

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

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

2.3.2 Build Alternative Options 1, 2, and 3

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

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

Table 2-12. Summary of Build Alternative Options

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

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

Notes:

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

LAUS=Los Angeles Union Station; Metro=Los Angeles County Metropolitan Transportation Authority; SCRRA=Southern California Regional Rail Authority; UP=Union Pacific Railroad

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

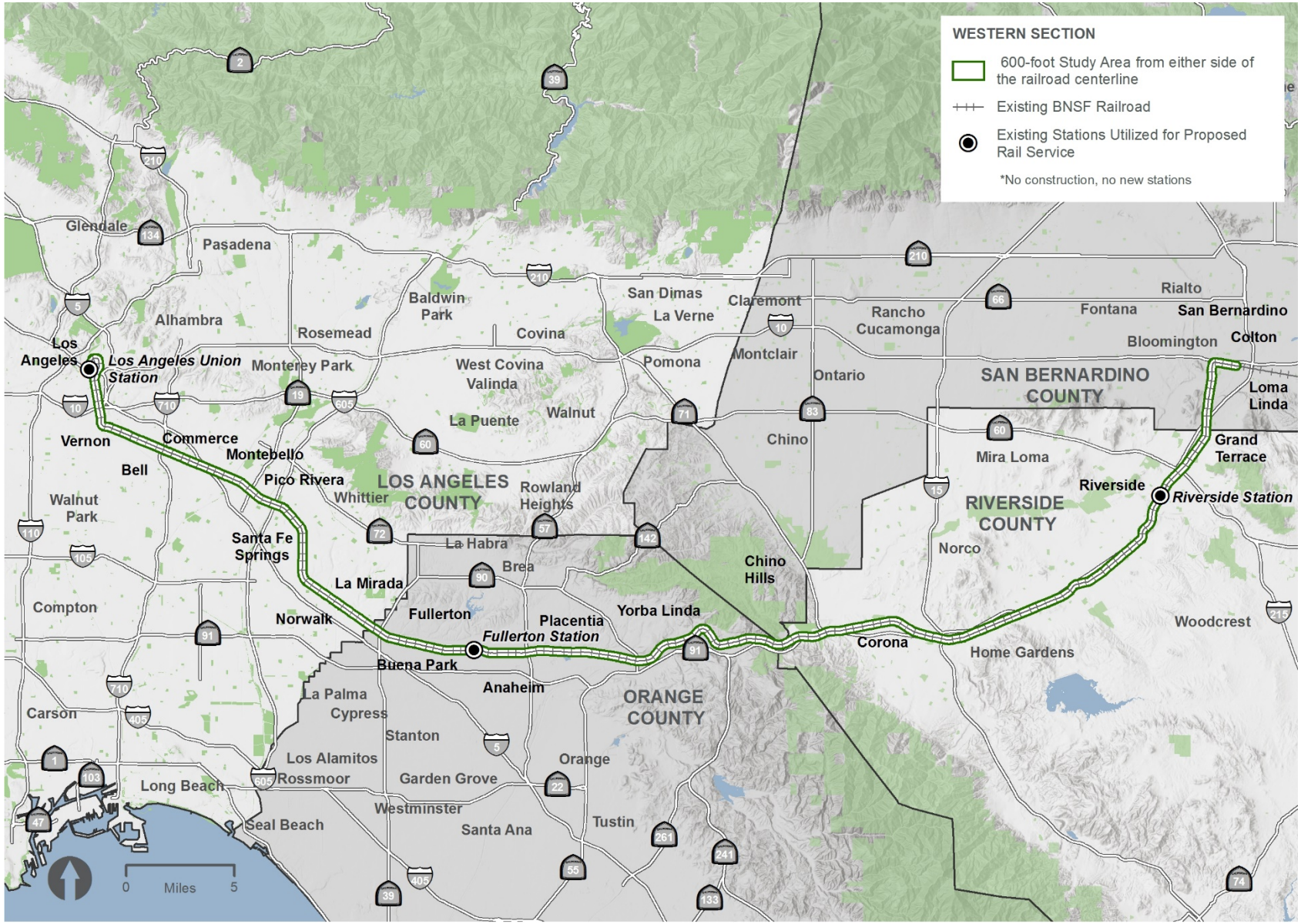

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Figure 2-5. Eastern Section of the Program Corridor (Build Alternative Option 1)

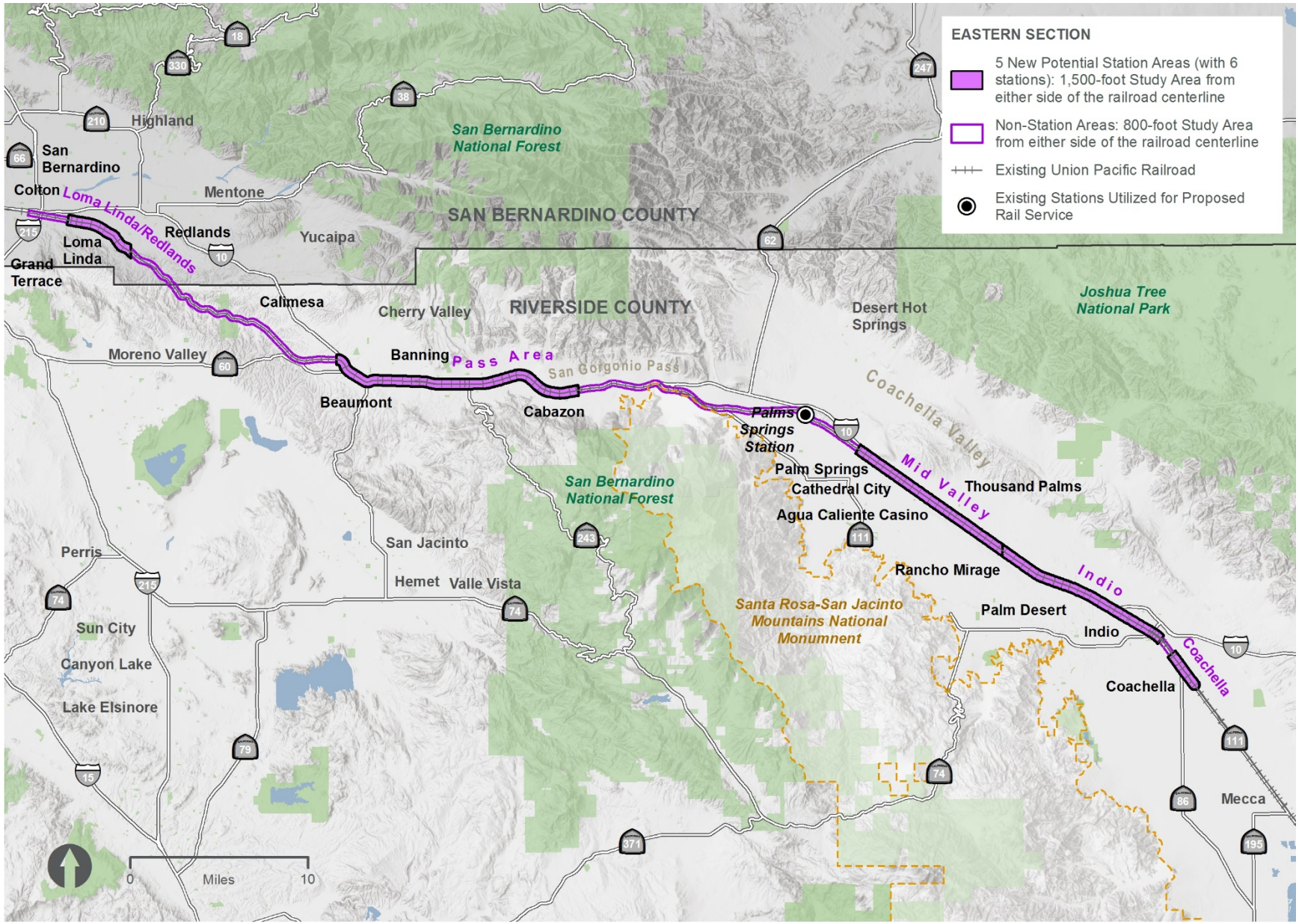

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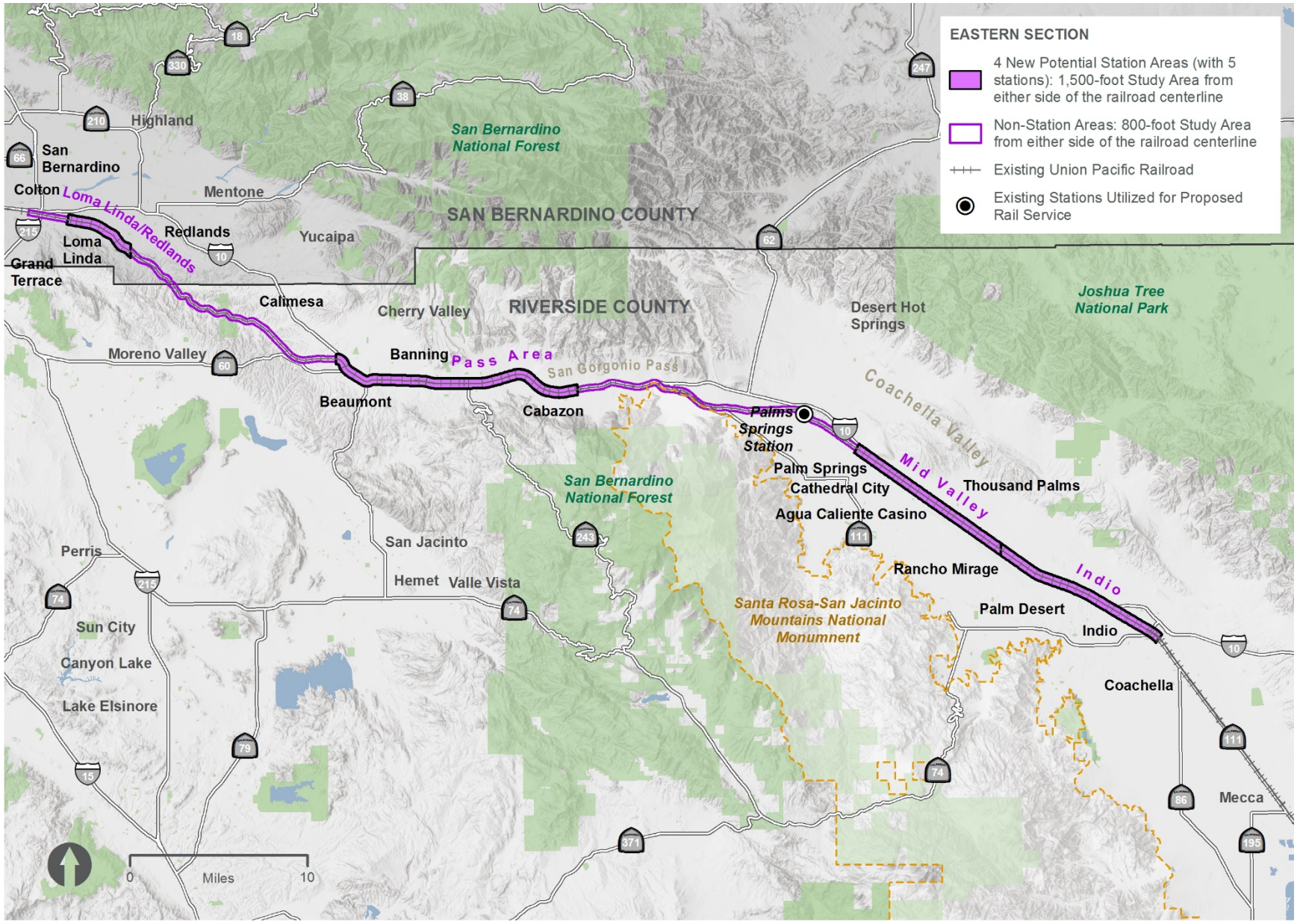
Figure 2-6. Eastern Section of the Program Corridor (Build Alternative Options 2 and 3)



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

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

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

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

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

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

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

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

Build Alternative Option 1 (Coachella Terminus)

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

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

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

Build Alternative Option 2 (Indio Terminus)

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

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

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

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

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

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

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