



FINAL

Alternatives Analysis

**Coachella Valley-San Geronio Pass Rail
Corridor Service Study**

Coachella Valley, CA

July 25, 2016



ES Executive Summary

The Coachella Valley – San Gorgonio Pass Rail Corridor Service Study (the Study), undertaken by the Riverside County Transportation Commission (RCTC) in coordination with the California Department of Transportation (Caltrans) and the Federal Railroad Administration (FRA), is studying the potential implementation of daily intercity passenger rail service between Indio in the Coachella Valley through San Gorgonio Pass to Los Angeles Union Station (LAUS) in Los Angeles, California. The first phase of this Project involves initial service development planning and completion of an Alternatives Analysis to identify potential routes in the Coachella Valley – San Gorgonio Pass Corridor (the Corridor).

RCTC, leading the study effort, is responsible for planning mobility improvements and managing the funding and coordination of all public transportation services within Riverside County. Additionally, RCTC is a member of the Southern California Regional Rail Authority (SCRRA), a joint-powers agency operating Metrolink commuter rail service. As part of these responsibilities, RCTC has entered into a shared use agreement with BNSF Railway (BNSF) that includes terms and conditions under which rail passenger service is operated on the BNSF line through Riverside. RCTC is also a member of the LOSSAN Rail Corridor Agency which oversees intercity passenger rail services in Southern California.

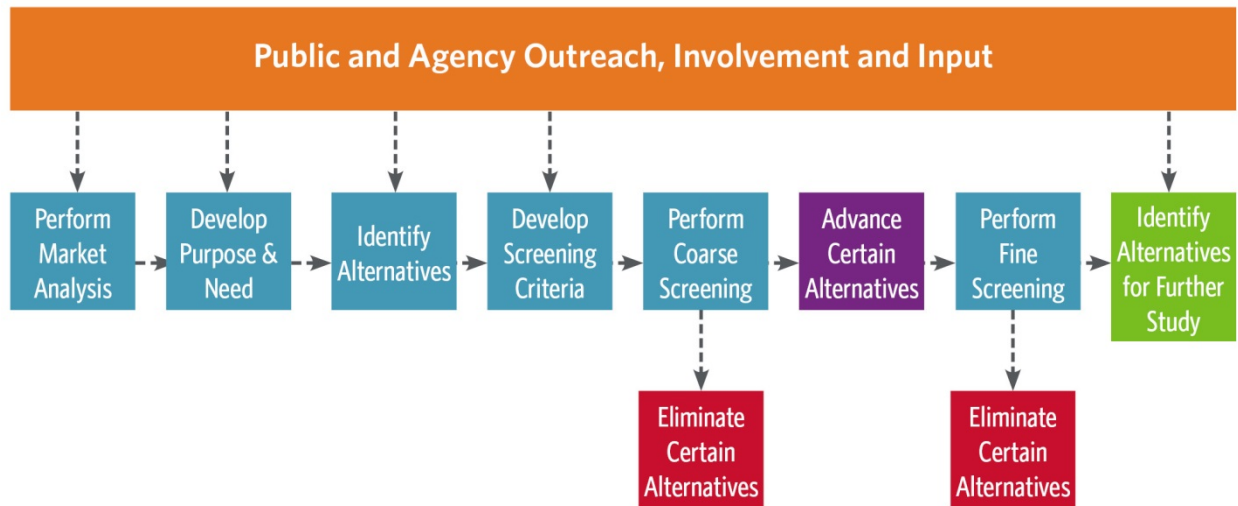
The goal of this Alternatives Analysis is to consider reasonable buildable alternatives for daily intercity rail service to the Coachella Valley, and determine which alternatives demonstrate superior performance and are worthy of more detailed evaluation in the subsequent Service Development Plan (SDP). In accordance with FRA guidance, planning for intercity rail projects must be supported by a rational planning process that establishes the Purpose and Need of the proposed project and evaluates a range of reasonable alternative improvement strategies that can meet the identified needs and accomplish the objectives.

This Alternatives Analysis involves six elements:

1. Performing a market analysis to understand the current and future travel demand in the Corridor;
2. Defining the project need and purpose;
3. Identifying a range of service alternatives;
4. Developing screening criteria;
5. Conducting a two-step screening analysis; and
6. Identifying alternatives to carry forward for additional study.

Stakeholder outreach was an essential element throughout the study and informed key decisions such as the Purpose and Need, alternatives identification and screening methodology. Figure ES-1 illustrates the Alternatives Analysis process.

Figure ES-1. Alternatives Analysis Process



This Alternatives Analysis report describes the project market analysis, the stakeholder and public outreach process, the Purpose & Need statement, the initial range of route alternatives proposed for consideration, the two-step screening methodology and criteria used to evaluate these route alternatives, and the results of the alternatives analysis. Through the two-step screening process, preliminary service planning elements were analyzed to identify the range of route alternatives that will be considered in the next phase.

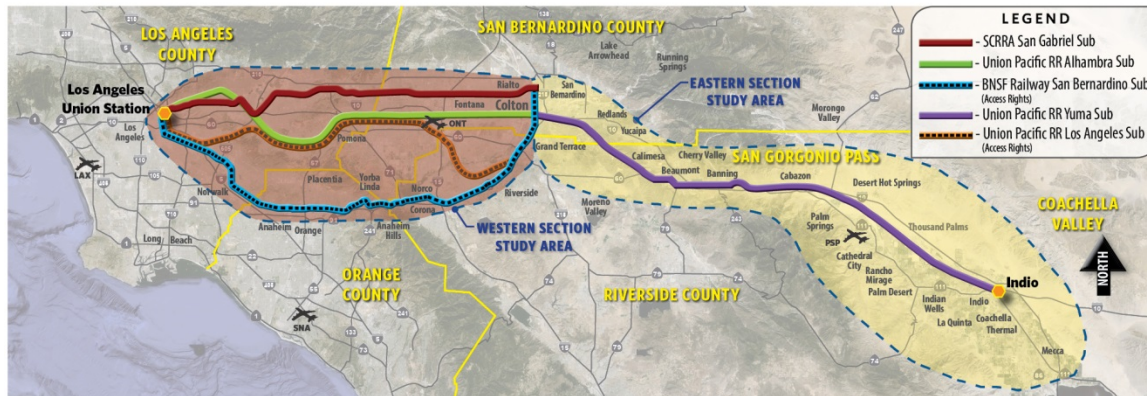
ES.1 Study Area

The Study Area extends from an eastern terminus in Indio, California, to LAUS in downtown Los Angeles, California, in the west. The Study Area consists of two sections, depicted in Figure ES-2, which also shows the ownership of the various rail corridor subdivisions throughout the project area and access rights:

- The Eastern Section is approximately 71 miles long between Indio and Colton, California, and includes the only existing rail route alternative for that section of the Corridor, the Union Pacific Railroad's (UP) Yuma Subdivision; and
- The Western Section between Colton and LAUS contains four existing primary rail lines that vary in length between 58 and 70 miles.

Throughout this report, the term Los Angeles Basin is used to describe the greater Los Angeles urbanized area which encompasses five counties in Southern California, extending from Ventura County in the west to San Bernardino County and Riverside County in the east, with Los Angeles County in the center and Orange County to the south. The Inland Empire is a geographic subset of the Los Angeles Basin, and generally includes the western urbanized area of Riverside and southwestern San Bernardino Counties, and excludes the Coachella Valley. The Coachella Valley, in central Riverside County, is a desert valley that extends approximately 40 miles southeast from the San Bernardino Mountains to the northern shore of the Salton Sea.

Figure ES-2. Study Area



ES.2 Market Analysis

A detailed market analysis of the Corridor was performed for this study, looking at demographics, existing transportation facilities and services, existing and future travel volumes and trip patterns, and how the transportation system performs both now and in the future.

A strong economic, demographic, and cultural connection exists between the Coachella Valley and the Los Angeles Basin – every day 130,000 people travel between the two regions, and that number increases on weekends. As the Los Angeles Basin population continues to increase and the Coachella Valley is expected to experience even greater population growth, the connection will become even stronger, with a projected 47% increase in travel over the next 20 years (SCAG 2012 RTP/SCS).

The four counties comprising the Corridor (Los Angeles, Orange, Riverside, and San Bernardino) have a current population of approximately 17 million, and by 2035, the population is projected to increase by 23 percent, adding more than 4 million new residents for a total of 20.8 million residents. The permanent population of the Coachella Valley (443,000 in 2008) is projected to double to 884,000 by 2035. The population of the San Gorgonio Pass Area is 77,000 and is projected to increase by 134% by 2035 with a forecast population approaching 175,000.

Virtually all of the travelers drive on I-10 through San Gorgonio Pass because few alternatives to driving and few road options exist to the freeway. Corridor travelers experience significant recurring highway congestion through many parts of the Corridor, but have limited public transportation alternatives: one Amtrak long-distance train connecting Palm Springs to Los Angeles three days per week with arrival and departures in the middle of the night; two commuter bus routes that operate weekdays only, one connecting the San Gorgonio Pass Area to San Bernardino, and one connecting the central Coachella Valley to Riverside; one Amtrak Thruway bus operating two daily round-trips that connects the Coachella Valley with the Pacific Surfliner train in Fullerton, and private intercity bus service operated by Greyhound. The lack of available transportation options leaves the Corridor underserved, yet travel demand is expected to increase in the future.

Corridor travel data show that multiple trip purposes comprise the Corridor's weekday travel market, and a combination of social/recreational and visitor trips increases the travel volumes on Fridays and weekends (AirSage, 2014).

As detailed in the Market Analysis chapter, the numbers support a need for a convenient, reliable, and affordable alternative to driving in the Los Angeles-Coachella Valley Corridor. The projected population and employment growth, existing and future travel demand patterns, recurring congestion, and scarcity of existing public transit options all suggest that an intercity rail alternative to driving the I-10 corridor could be successful.

ES.3 Outreach

At the outset of the Alternatives Analysis process, a comprehensive outreach plan was developed to serve as the blueprint for community engagement and stakeholder input. Key components of the project outreach efforts include:

- Engaging agency partners through Technical Advisory Committee (TAC) meetings
- Hosting stakeholder briefings for elected officials
- Hosting public outreach meetings using in-person and webcast formats
- Development and ongoing maintenance of a contact database
- Updating existing RCTC website pages and responding to inquiries via the website
- Creation of fact sheets and frequently asked questions (FAQ)
- An ongoing social media campaign on Facebook and Twitter

Stakeholder outreach was a critical element of the Alternatives Analysis, and the feedback helped to inform key decisions including defining the Purpose and Need, identifying alternatives, and developing and endorsing the screening methodology.

ES.4 Purpose and Need for the Study

The Study's Purpose and Need, approved by the RCTC Board of Directors in July 2015, was developed using the information from the Market Analysis and stakeholder input from the outreach process. The market analysis established the data-driven basis for the project's Need and Purpose, supported by feedback from collaboration with multiple agencies, elected officials, and public meetings and surveys.

Need for Transportation Improvements

1. For interregional travel between the Coachella Valley and the Los Angeles Basin there are very limited options to driving a private vehicle, so people who cannot afford to own and operate a private vehicle, or choose not to, have very limited ability to travel between the regions, and people who might prefer not to drive and do not have a viable alternative.

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

Purpose and Objectives for Transportation Improvements

The transportation service improvements should achieve the following objectives:

1. Provide travelers between the Coachella Valley and the Los Angeles Basin with a public transportation service that offers more convenient and competitive trip times, better station access, and more frequency, than currently-available public transportation services;
2. Provide travelers between the Coachella Valley and the Los Angeles Basin with an alternative to driving that offers reliable travel schedules;
3. Provide travelers between the Coachella Valley and the Los Angeles Basin with a transportation service that is affordable.
4. Serve a range of trip purposes traveling between the Coachella Valley and the Los Angeles Basin, particularly including business, social, medical, leisure, and recreational trips;
5. Improve regional travel opportunities between the Coachella Valley and the Los Angeles Basin for transit dependent people;
6. Is planned to serve the expected population growth in the Coachella Valley and the Los Angeles Basin;
7. Does not preclude, by choice of alignment or technology, a possible future Corridor expansion between the Coachella Valley and Phoenix.

ES.5 Identify Range of Route Alternatives

The Study identified potential route alternatives and service options for the Corridor based on the Purpose and Need Statement, review of previous studies, and ideas or concepts that were suggested by resource agencies or the public during the outreach process.

Six intercity rail route alternatives were identified, as shown in Figure ES-3. For the Eastern portion of the alignment, all of the alternatives utilized the Union Pacific Railroad's (UP) Yuma Subdivision between Indio and Colton. The Western portion used various combinations of four existing rail lines between Colton and Los Angeles. Rail routes on new track alignments were not considered as alternatives because they would be excessively costly and would involve high levels of environmental impacts. New express bus service and short line rail service options were not considered as alternatives because they would not effectively achieve the Purpose and Need objectives.

Figure ES-3. Coachella Valley – San Gorgonio Pass Rail Corridor Route Alternatives



Route Alternatives 1 through 3 use the UP Yuma Subdivision between Indio and Colton and then follow three of the four rail lines west of Colton, as described below.

- **Route Alternative 1** uses the BNSF Railway (BNSF) San Bernardino Subdivision from Colton through Riverside and Fullerton to reach LAUS;
- **Route Alternative 2** uses the UP Los Angeles Subdivision from Colton through Riverside and Pomona to reach LAUS;
- **Route Alternative 3** uses the UP Alhambra Subdivision from Colton through Ontario and Pomona to reach LAUS.

Route Alternative 4 uses the UP Yuma Subdivision between Indio and Colton, the SCRRA Short Way Subdivision between Colton and San Bernardino, and the Metrolink San Gabriel Subdivision (owned by Los Angeles Metro (Metro) and the San Bernardino Associated Governments (SANBAG) between San Bernardino and Los Angeles. It has two variations between San Bernardino and Los Angeles.

- **Route Alternative 4-A** uses the Metrolink San Gabriel Subdivision through Rialto and Montclair to reach LAUS, but does not travel east to serve the new E Street Station in downtown San Bernardino that is currently under construction, making its length approximately 4 miles shorter than Alternative 4-B;
- **Route Alternative 4-B** also uses the Metrolink San Gabriel Subdivision, but travels east from the SCRRA Short Way Subdivision to serve the new E Street Station in San Bernardino so its route is approximately four miles longer than Alternative 4-A.

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

- **Route Alternative 5** uses the SCRRA Short Way Subdivision between Colton and San Bernardino, the SCRRA San Gabriel Subdivision between San Bernardino and El Monte, and the UP Alhambra Subdivision between El Monte and Los Angeles.

ES.6 Description of the Proposed Service

For purposes of this analysis the assumed endpoints of the proposed passenger rail service are Indio and Los Angeles. The proposed maximum speed of the service is 79 miles per hour (mph), which would result in scheduled one-way travel times between Indio and Los Angeles of approximately three to three and a half hours, depending upon the route alternative and the number of station stops. Comparatively, during non-congested periods, a driving trip between LAUS and Indio along I-10 takes approximately two hours, and during peak travel periods such as Friday evenings, driving may take up to three and a half hours. Of the two potential endpoints, only the Los Angeles station location has been identified at this time (LAUS). Intermediate station stops would be located on each route alternative at some of the larger intermediate cities; however, specific sites have not been identified in this Alternatives Analysis and will be studied in the subsequent SDP. The frequency of the proposed passenger rail service has been initially defined as two daily round trips between Indio and Los Angeles. Although the proposed passenger rail service would use existing infrastructure, additional infrastructure (such as track, wayside signals, drainage and grade-separation structures, and stations) is likely to be necessary, to varying degrees, for each route alternative.

ES.7 Screening Criteria and Methodology

The screening process, developed in consultation with the FRA, included two steps: an initial coarse-level screening to identify whether any route alternative is hindered by major challenges (and would thus be eliminated from subsequent fine-level screening), and a fine-level screening to evaluate the remaining route alternatives in greater quantitative and qualitative detail. This two-step screening process evaluated the route alternatives on the basis of specific criteria in the following categories:

1. Purpose and Need
2. Environmental Constraints
3. Technical Feasibility
4. Economic Feasibility

Alternatives that are clearly inferior in terms of meeting the Purpose and Need, environmental constraints, technical or economic feasibility are eliminated so the next step in the study process (the SDP) can focus on the route alternatives that are clearly most deserving of detailed evaluation.

ES.8 Coarse-Level Screening

The coarse-level screening concluded that two of the six route alternatives, Route Alternatives 2 and 3, were not reasonable and feasible. Both 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 Coachella Valley passenger rail service and mitigate effects on freight rail capacity and reliability. Both routes also experience freight-train congestion and serve freight terminals where trains enter and exit at low speeds. The remaining

four route alternatives were carried forward for more detailed consideration in the fine-level screening.

For the Eastern Section of the Corridor, the UP Yuma Subdivision was also evaluated in the coarse-level screening to determine if there were any significant “fatal flaws” that could render the existing rail line as an unreasonable or infeasible route alternative. Based on the results of the coarse-level screening, the Yuma Subdivision was carried forward into the fine screening as the only reasonable and feasible Eastern Section for each of the remaining route alternatives.

ES.9 Fine-Level Screening

The fine-level screening concluded that one of the four remaining alternatives is to be carried forward from the Alternatives Analysis based on its comparison to the other three in terms of all four screening criteria categories (Purpose and Need, Environmental Constraints, Technical Feasibility, and Economic Feasibility). Route Alternative 1 demonstrated superior performance in the following ways:

1. Meeting Purpose and Need
 - Serving the largest population catchment area (two million people more than each of the other alternatives)
 - Having the highest ridership and revenue forecast (17-19% higher ridership forecast than the next-best alternative)
 - Offering a competitive travel time (comparable travel time to the next-best alternative, and 17-22 minutes less than the other two alternatives).
2. Reducing Environmental Constraints
 - No impact to environmental resources (all of the other alternatives have potential impacts to parkland, schools, Superfund sites and historic properties).
 - No right-of-way concerns (all other alternatives require property acquisition causing potential displacement of commercial and residential uses).
3. Offering Technical Feasibility
 - Available and adequate passenger and freight capacity (8.8-13.4 miles of new track for the other alternatives)
 - No major alignment changes needed (two new track connections for the other alternatives).
 - No new major structures or grade crossings required (new San Bernardino flyover and 24-28 grade crossing improvements for the other alternatives).
4. Affording Economic Feasibility
 - Lowest capital cost of all alternatives (approximately \$100-\$250 million less than the other alternatives)
 - Uses available operating rights

ES.10 Conclusion and Next Steps

The purpose of this Alternatives Analysis was to consider alternatives for improving intercity transit between the Coachella Valley and Los Angeles, and to identify the alternatives that demonstrate superior performance for more detailed evaluation. Based on the Alternatives Analysis results, Route Alternative 1 will be carried forward for analysis in the Tier 1 Environmental Impact Statement (EIS)/Programmatic Environmental Impact Report (EIR) and a SDP because, when compared to other route alternatives considered, it:

- Meets the project Purpose and Need
- Has relatively low construction complexity and low construction costs by exercising operating rights and leveraging public agency railroad capital investments
- May not require a flyover above an active rail line
- Has a competitive passenger-train travel time
- Serves the largest population
- Has the highest ridership and revenue forecast
- Has no unreasonable environmental resource issues

A No-Build Alternative will also be carried forward for analysis in the Tier 1 EIS because evaluation of No Action is required by the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), and the alternative serves as a basis of comparison for likely impacts of constructing and operating the Coachella Valley-San Geronio Pass Rail Corridor service. The Tier 1 EIS analysis will provide a basis for selecting the service level (station stops and frequency) that will best meet the Purpose and Need for the new passenger rail service.