6. DETAILED PROJECT DESCRIPTION

6.1 Overview

The Project will eliminate the existing highway-grade rail crossing (USDOT Crossing ID 026068N) of Vista Road and the Southern Transcontinental rail corridor (Transcon) in the unincorporated rural community of Helendale in San Bernardino County. Vista Road will be extended southward adjacent to the rail corridor approximately three-quarters of a mile where it will connect to a newly constructed grade separated structure over the rail corridor and along an approximately 750-foot road extension connecting to the National Trails Highway (also known as Route 66). An overview of the Project's main construction elements is shown in Figure 2.

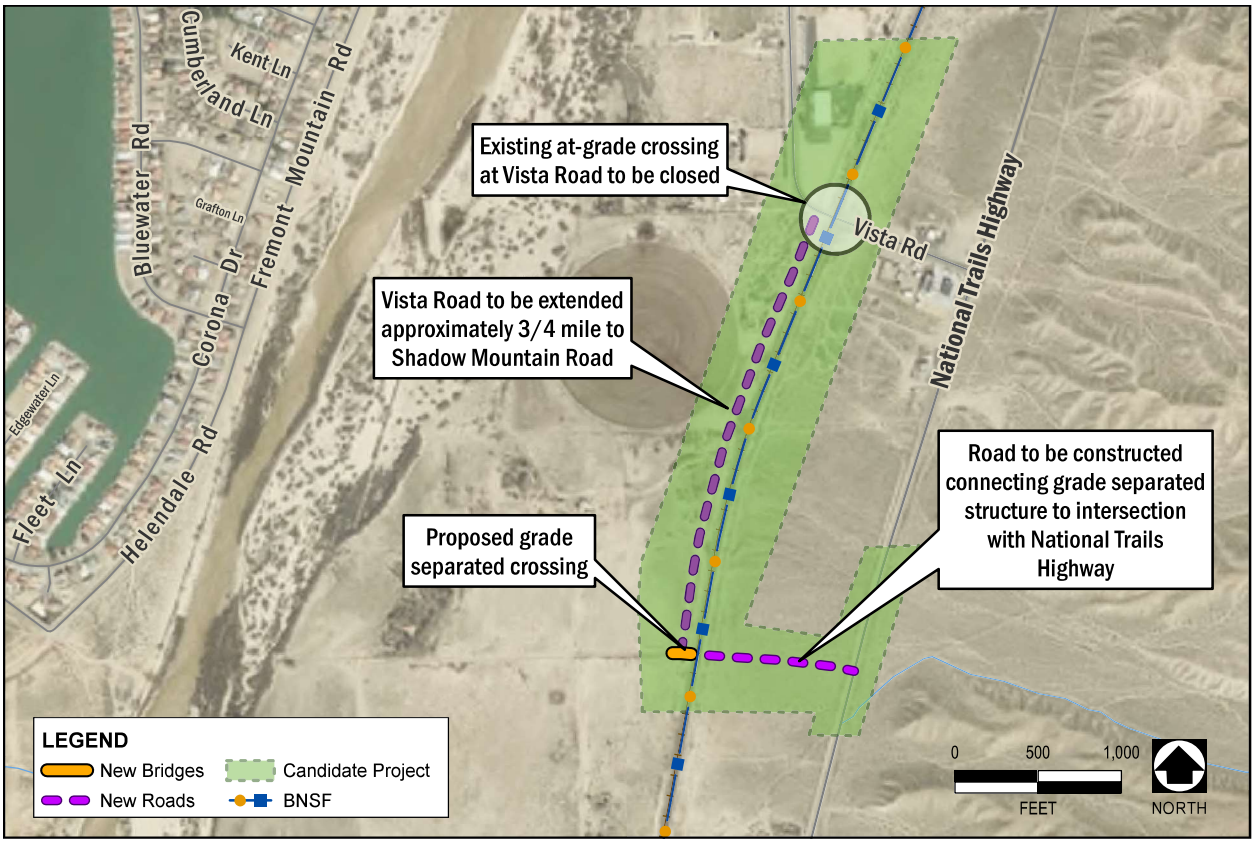

Figure 2: Proposed Vista Road Crossing Closure and Grade Separation Project

Source: San Bernardino County, AECOM

In addition to Amtrak's daily Southwest Chief service, the Transcon carries between approximately 70 freight trains a day (rising to 90 during seasonal peaks) operated by BNSF and Union Pacific depending on operating needs. An overview of train movements in the project area is shown in Table 5.

Vista Road is the only roadway allowing access to the Helendale/Silverlake community from the National Trails Highway. Increased train movements coupled with the growth in vehicular

traffic has resulted in an increase in delays at the existing at-grade crossing. These delays have not only affected traffic but also impacted access by emergency vehicles. There is no medical facility, fire station, or sheriff station in Helendale. With the closest emergency facilities located in Victorville fifteen miles to the south, delays at the occupied Vista Road at-grade crossing can be a vital factor in critical situations. In recent years, the at-grade crossing has also been the site of several accidents, including one resulting in a fatality in 2023.

The overarching objective of the Project is to enable safer, more efficient, and more reliable operations for intercity passenger rail, freight rail, and road vehicles. In addition to improving mobility, the Project's implementation will also promote economic opportunities in a rural and unincorporated area of the County experiencing economic and social disadvantages.

The Project consists of several components addressing multiple modes of transportation and includes both pre-construction and construction activities.

6.2 Preconstruction Activities

The Project's pre-construction activities comprise of Project Development lifecycle stage activities of Advancing Preliminary Engineering to 95%, Environmental Analysis and Determination, and Right of Way Acquisition, and the Final Design lifecycle stage activity of Advanced and Final Design.

6.2.1 Advance Preliminary Engineering to 95%

The County and their consultant team will build upon the existing preliminary engineering, and will review the current 60% design, updating standard and furthering the design to 95%, thus completing the planning, specification, and estimates (PS&E) stage.

6.2.2 Environmental Analysis and Determination

The County completed a Preliminary Environmental Study in 2012 evaluating the grade separation for permit and environmental requirements. The study found the Project is expected to be cleared with a Categorical Exclusion under current regulation 771.117(d)(3) enabling the construction of grade separations to replace existing at-grade railroad crossings.

In coordination with the FRA, the County will prepare necessary NEPA documents, including, but not limited to the following:

- Definition of the Project and existing conditions;
- Identification of the purpose of and need for the Project;
- Identification and analysis of Project build alternatives and a no-action alternative; and
- An analysis of existing conditions in comparison to the impacts of the proposed action, including any needed technical reports to perform section 106 clearance on the connection to National Trails Highway.

The County will address FRA comments and produce a final document for review and approval.

6.2.3 Right of Way Acquisition

To successfully construct and implement the Project, the County needs to acquire – both permanently and temporarily (for access easements) approximately twenty-nine (29) acres of right-of-way with the bulk of this land needed for the extensions of Vista Road and Shadow Mountain Road to the newly constructed grade separated structure.

6.2.4 Final Design

Having advanced the Project's design to 95%, the County's engineering team will prepare an Engineering Design Review package, including Final Design (FD) for FRA for review and acceptance to support construction. The Engineering Design Review will include Final Design Plans, specifications, updated cost estimates based on FD quantities, and schedules necessary to demonstrate the effectiveness, feasibility, and readiness of the Project to be bid and/or constructed by a qualified contractor. The Engineering Design Review will include an engineer's schedule, construction estimate and documentation approval of the plan by stakeholders, as applicable.

6.3 Construction

The Project's construction life cycle activity components are composed of two elements: Crossing Closure, Road Reconfiguration and Extension; and Grade Separation Structure and Roadway Extension.

6.3.1 Crossing Closure Road Reconfiguration and Extension

The existing at-grade crossing of Vista Road and the Transcon will be closed, eliminating the conflict point between roadway vehicles and trains. The roadway element of the Project will comprise the realignment of the existing intersection with Vista Road and Jordan Road to allow for free flow of traffic and eliminating the existing at-grade crossing with the BNSF corridor. Vista Road will be extended approximately 3,800 feet (0.72 miles) south within the footprint of the existing unpaved Jordan Road, where it will terminate at a T intersection with Shadow Mountain Road. The extended Vista Road will consist of two twelve-foot travel lanes with eight-foot shoulders and six-foot sidewalks, curbing, striping, and traffic signals. To the immediate east of the Vista Road's extension's terminus, a grade separated structure will carry the Shadow Mountain Road over the BNSF corridor and along a newly constructed extension of Shadow Mountain Road of approximately 750 feet to a newly constructed T-intersection with National Trails Highway. This approximately 1,100-foot section of Shadow Mountain Road will consist of two twelve-foot lanes in each direction with eight-foot shoulders. Additional improvements will include drainage elements consistent with best management practices consistent with the County's water quality management plan (WQMP).

6.3.2 Grade Separated Structure and Roadway Extension

The grade separated structure carrying Shadow Mountain Road over the BNSF rail corridor a single span Cast-in-Place / Pre-Stressed (CIP/PS) Box Girder with a span length of 215 feet and width of 64.5 feet. The structure design will comply with the Union Pacific Railroad-BNSF Railway Guidelines for Railroad Grade Separation Projects in regard to mechanically stabilized (MSE) walls to support bridge abutments and soil fill for the approaches. It is assumed that, under the final design, abutments will be MSE wall abutment on stub footings, supported by deep foundations through reinforced fill. New roadway and embankments will be constructed on both abutment approaches up to 42 feet high with 2H:1V slopes. The facility will carry two twelve-foot lanes in each direction with eight-foot shoulders and concrete guardrails and fencing. The bridge will be built out to four lanes to accommodate the future four lane Shadow Mountain Road extension (Phase 2) which will provide secondary access to Helendale from National Trails Highway.

The County will be responsible for ensuring the Project is constructed in accordance with the FRA approved environmental documents and the FRA-accepted engineering documentation. The County is responsible for ensuring that any commitments identified in the approved environmental document are accounted for in the engineering design and implementation process.

Upon its completion and commencement of operations, the Project will deliver improved safety and reliability of passenger and freight rail operations along this section of the Transcon while providing safer and faster multimodal mobility to and from Helendale from the National Trails Highway. The elimination of delay associated with vehicular queueing at the existing at-grade crossing as a result of the Project's implementation will also improve reliability of access to and from Helendale, ensuring that emergency services are able to efficiently access the town when needed. The Project is the first phase of a larger program of works aimed at providing safer and more efficient access to Helendale from the National Trails Highway. The second phase, currently at an early stage of conceptual development, would be comprised of the extension of Shadow Mountain Road from the Phase 1 grade separated structure west to where it will be carried by a new bridge over the Mojave River thus providing a second point of access to Helendale from the National Trails Highway.

7. SAFETY BENEFIT DATA

The existing Vista Road crossing proposed for closure has been identified as a location having significant exposure between roadway and railroad traffic amongst all at-grade crossing in San Bernardino County, which has the highest number of at-grade crossing incidents in California (1,513 incidents). More than 70 passenger and freight trains traverse this crossing daily (rising to approximately 90 trains in the last quarter of the calendar year), and it ranks fifth in the county in terms of total incidents which have led to significant delays for both rail and road users. Given that California is the sixth-ranked state for total at-grade crossing incidents involving passenger and freight trains since 2019, the Project's primary objective is to enhance safety by decommissioning the Vista Road crossing and constructing a new grade separated crossing three quarters of a mile south, thereby significantly reducing the risk of vehicular and train collisions and addressing the pressing need for safety improvements.

The FRA's Highway-Rail GXAPS corroborates the history of accidents at the Vista Road crossing. With a GXAPS rating of 0.302741, the existing Vista Road at-grade crossing is 12 times more likely to witness a crash than the average California crossing (GXAPS rating of 0.025143). Currently, Vista Road is ranked 109th out of the state's 5,516 railroad crossings in terms of its likelihood of experiencing a future crash. It also ranks third among the 264 highway-rail grade crossings in the County.

Over the past 5 years, the Vista Road crossing has been the site of major safety incidents. The most recent accident took place on April 18, 2023, when a BNSF train collided with a vehicle resulting in a fatality and another severe injury (aftermath shown in Figure 3). As vehicle traffic and train activity continue to increase, so do delays at the existing at-grade crossing, leading to obstructed access for emergency vehicles and an increased risk of crashes.

Figure 3: Rail-Vehicle Accident at Vista Road Crossing Resulting in Fatality and Severe Injury

Source: Victor Valley News (2023)

Based on safety incident activity at the crossing which has occurred within the past five years, the implementation and operation of the project would result in the avoidance of approximately 4 fatalities and 8 injuries over its first twenty years of operation. A more detailed description of the approach taken and finding of the safety benefit analysis can be found the in the Benefit Cost Analysis technical memo included in this application package.

In addition to eliminating the possibility of accidents at the Vista Road at-grade crossing, the Project will yield additional safety benefits, such as reducing travel delays for emergency services. Currently, the closest hospital to Silver Lakes is approximately 16 miles south in Victorville, and the community is isolated by the rail corridor. The response time of emergency services is contingent on train traffic. Similarly, the County Sheriff's Department (Victor Valley Sheriff's Station), the nearest police station to the Silver Lakes community, is approximately 21 miles south. Its response time to emergencies can also be hindered due to train traffic occupying the crossing at Vista Road. Therefore, the Project is crucial for improving safety and emergency response times in the community.

8. PROJECT LOCATION

The Project is located in unincorporated San Bernardino County near the community of Helendale, in California's 23rd Congressional district (as shown in Figure 4). The Vista Road crossing (DOT No. 026068N) proposed for closure as part of the Project's implementation is located at railroad milepost 22 with a latitude of 34°43'58.67"N and a longitude of 117°19'45.35"W. The proposed grade separated structure crossing over the BNSF rail corridor would be located approximately three-fourths of a mile south of the existing Vista Road crossing at latitude of 34°43'32.93"N and a longitude of 117°19'56.52"W.

Situated in the western part of San Bernardino County, between Victorville and Barstow, Helendale is mainly made up of the Silver Lakes community and is a peaceful rural retreat in the Victor Valley of the Mojave Desert. With a population of 6,163 according to the 2020 U.S. Census, Helendale is defined by its remote desert location. Helendale's history is closely linked to the 1926 opening of Route 66. The area is predominantly made up of the Silver Lakes community but also encompasses ranches and agricultural lands. Since the early 1970s, the Silver Lakes community centers around two manmade lakes, covering approximately 277 acres, and includes a clubhouse, equestrian center, an inn, and three schools. The major roadways in the area are National Trails Highway (Route 66), Vista Road, and Shadow Mountain Road.

San Bernardino County is a bustling global commerce center with robust transportation infrastructure and a large, skilled workforce. The County is larger than nine U.S. states in area, spanning over 20,160 square miles, houses over 645,000 households with a median income of $86,000 and a labor force of 950,000. It has three major airports, three major interstate highways, and significant railways.

The state of California ranks sixth in total at grade railroad crossings while San Bernardino County has the most incidents in the state. Unfortunately, the County ranks first in the state of California for total at-grade crossing incidents, making it the sixth most incident-prone county in the nation. The Port of Los Angeles and Long Beach are major gateways for goods imported from Asia and elsewhere. Freight transit through this corridor is a lynchpin distribution leverage point with great economic significance for Southern California and nation. The Project's location in this region enhances the importance of efficiency and safety of this freight network.