

VISUAL QUALITY TECHNICAL REPORT

Brightline West Cajon Pass High-Speed Rail Project

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Prepared for
Federal Railroad Administration

Prepared by
HNTB Corporation

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Abbreviations and Acronyms

| | |
|----------|---|
| ARRIVE | Advanced Regional Rail Integrated Vision – East |
| AT&SF | Atchison, Topeka & Santa Fe Railway |
| BLM | Bureau of Land Management |
| BMP | best management practice |
| Caltrans | California Department of Transportation |
| CHP | California Highway Patrol |
| EIR | Final Environmental Impact Report |
| FHWA | Federal Highway Administration |
| FRA | Federal Railroad Administration |
| GHG | greenhouse gas |
| HOV | high-occupancy vehicle |
| HSR | high-speed rail |
| I- | Interstate |
| KOP | key observation point |
| LOS | level of service |
| MOU | memorandum of understanding |
| mph | miles per hour |
| Project | Cajon Pass High-Speed Rail Project |
| SBCTA | San Bernardino County Transportation Authority |
| SCAG | Southern California Association of Governments |
| SCE | Southern California Edison |
| SR | State Route |
| US 395 | United States Highway 395 |
| U.S.C. | United States Code |
| USDOT | United States Department of Transportation |
| VMT | vehicle miles traveled |

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1. Introduction

DesertXpress Enterprises, LLC (dba “Brightline West”) proposes to construct and operate the Cajon Pass High-Speed Rail Project (Project), a 49-mile train system reaching a top speed of approximately 140 miles per hour (mph) between Victor Valley and Rancho Cucamonga, California. The Project includes two railway stations—one in Hesperia, and one in Rancho Cucamonga. The station in Victor Valley would be constructed as part of a separate project that was evaluated in the DesertXpress Final Environmental Impact Statement (Final EIS; FRA 2011).

The Project would be powered by overhead electric catenary within the I-15 right-of-way for 48 miles and on existing transportation corridors for the last mile into the proposed Rancho Cucamonga station. The Project would require construction of one new substation in the Hesperia area. The maintenance facility that was evaluated for the Brightline West Victor Valley to Las Vegas High-Speed Passenger Rail Project would provide the primary maintenance functions, although layover tracks are anticipated at the Rancho Cucamonga station, which could include light maintenance capability, such as interior cleaning and daily inspection (FRA 2020).

Trains are expected to operate daily on 45-minute headways between Victor Valley and Rancho Cucamonga. The trip between Victor Valley and Rancho Cucamonga would be approximately 35 minutes. Service would be coordinated with existing and planned Metrolink service at the Rancho Cucamonga station to provide a convenient connection between the high-speed rail (HSR) and commuter rail systems.

The Project would be constructed and operated under a lease agreement with the California Department of Transportation (Caltrans) for the use of the I-15 right-of-way and the station at Hesperia. Brightline West would secure additional agreements for Right-of-Way Use, Design & Construction Oversight and Reimbursement, and Operations & Maintenance, as necessary. For the last mile of the Project, from I-15 to the Rancho Cucamonga station, there will be agreements with the City of Rancho Cucamonga and the San Bernardino County Transportation Authority (SBCTA) for land rights, construction, and operations and maintenance.

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2. Project Description

2.1. Background

Early project coordination for HSR service from Victor Valley to Rancho Cucamonga began in 2020, with Brightline West meeting with the SBCTA to examine a connection between Victor Valley and Rancho Cucamonga. This meeting resulted in a memorandum of understanding (MOU) that was fully executed in July 2020 between Brightline West and SBCTA to study the potential of building HSR within the I-15 right-of-way between Victor Valley and Rancho Cucamonga. A separate MOU was executed in September 2020 between Brightline West and the Southern California Regional Rail Authority, which operates Metrolink, for connection to the existing Metrolink station in Rancho Cucamonga. Additionally, the California State Transportation Agency (CalSTA), Caltrans, the California High-Speed Rail Authority, and Brightline West have executed an MOU regarding the Project. The MOU reflects both the regional and statewide interest and value in the Project, including interconnectivity opportunities, and outlines how the parties will work together to advance their shared interest in the success of the Project.

2.2. Project Area

The Project would construct and operate the Cajon Pass High-Speed Rail Project, a 49-mile train system capable of speeds up to 180 mph between Victor Valley, California, and Rancho Cucamonga, California. The Project includes two railway stations—one in Hesperia, and one in Rancho Cucamonga, and will connect to another Brightline West station in Victor Valley (constructed as part of a separate project). The Project would consist of a rail alignment located in the median of the I-15 freeway between Victor Valley and Rancho Cucamonga except for the last mile approaching the proposed Rancho Cucamonga station. The project area is depicted in Figure 1.

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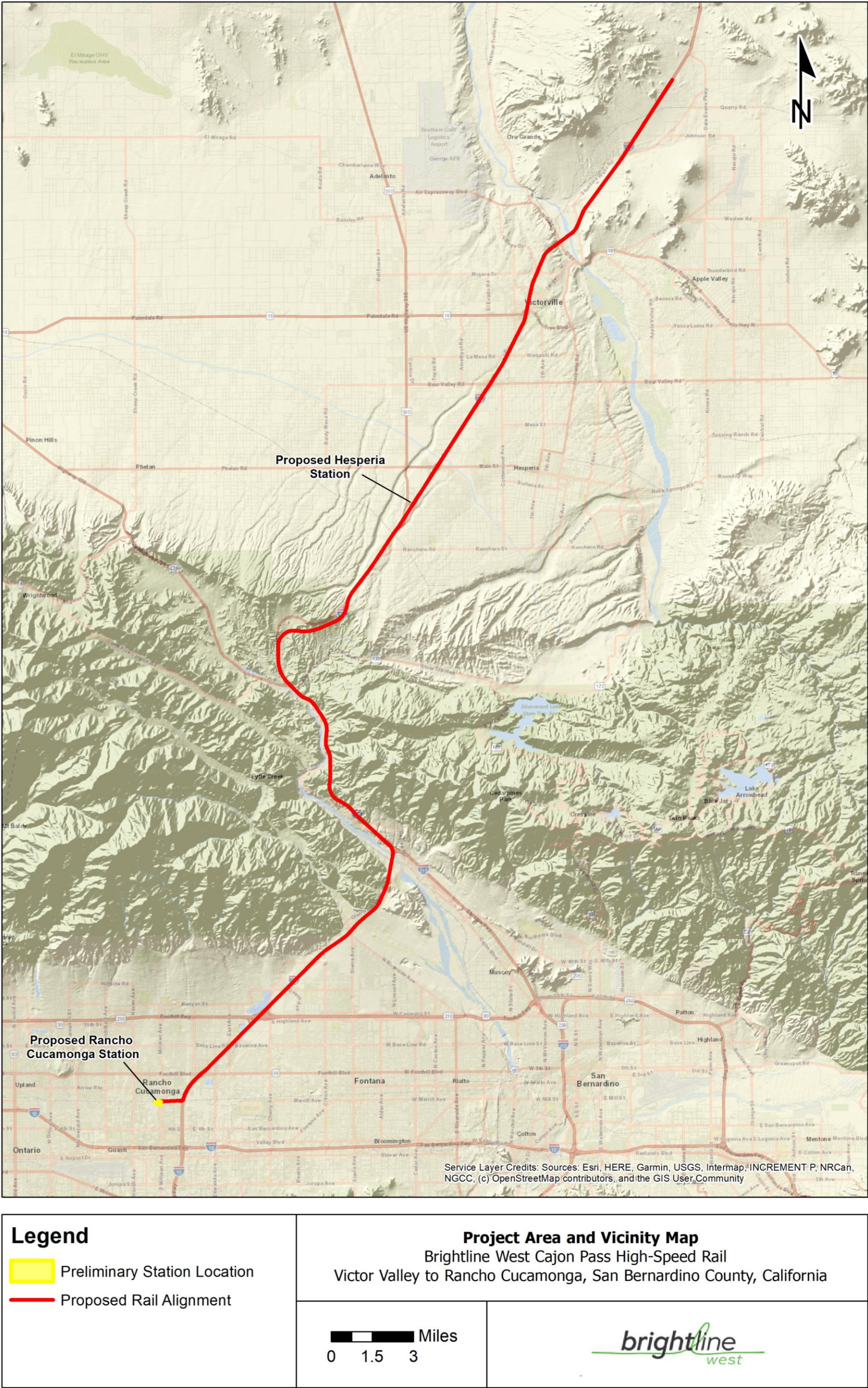


Figure 1. Project Area and Vicinity Map

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2.3. Purpose of and Need for the Project

2.3.1. Purpose

The purpose of the Project is to provide reliable and safe passenger rail transportation between the Los Angeles metropolitan region and the High Desert of San Bernardino County. The Project would provide a convenient, efficient, and environmentally sustainable alternative to automobile travel on the highly congested I-15 freeway. The Project would add capacity to the overall transportation system by introducing a new HSR service from Victor Valley to Rancho Cucamonga. The Project would reduce travel time, improve reliability, and increase the mobility options for travel between metropolitan regions. Travel time from Victor Valley to Rancho Cucamonga for Project users would be approximately 30 percent faster during normal conditions and at least twice as fast during congestion peak periods. The Project would reduce automobile vehicle miles traveled (VMT), resulting in a corresponding reduction in greenhouse gas emissions (GHG) and air quality emissions.

2.3.1.1. *Multi-Modal Use of the I-15 Corridor*

Operation of the Project would significantly increase the capacity of I-15 as a multi-modal corridor in Southern California. The increase in capacity would benefit freeway operations by providing an alternative to automobile travel that would reduce travel time. This shift of people from automobile to train travel along the I-15 corridor would reduce the need for programmed and/or planned freeway improvement and widening projects.

2.3.2. Need

The Project is needed to address transportation capacity deficiencies, major points of congestion, limited travel mode choices, safety deficiencies, and reduce GHG emissions.

Travel demand analysis completed on behalf of the Project in 2020 forecasts 49.1 million one-way trips between Southern California and Las Vegas in 2025, with approximately 85 percent of travelers making the trip by automobile. Most of these trips use the Cajon Pass segment of the I-15, which is capacity-constrained. Further, the freeway system leading into the I-15 from points west, east, and south, including I-10, State Route (SR) 210, I-215, and SR 60, have similar delays and capacity constraints. The Project would address this demand by providing a transportation alternative to automobile travel, and it would allow access to the Brightline West service from the Greater Los Angeles and the Riverside-San Bernardino-Ontario Metropolitan areas, as well as points beyond, with a connection to the Metrolink system in Rancho Cucamonga.

The Project would also support federal and state policies focused on climate change and the need to reduce VMT and associated GHG emissions.

2.3.2.1. *Capacity Constraints*

I-15 through the Cajon Pass is one of the most congested segments of I-15, with no alternative routes that provide comparable direct road travel capability because of the mountainous topography. Through the Cajon Pass, I-15 supports daily workforce commuters, recreational

travel, and regional and interstate freight and goods movement. According to the traffic study prepared for the I-15 Corridor Project Initial Study/Environmental Assessment (Caltrans and SBCTA 2018), unreliability in travel time along segments of I-15 and surrounding roadways is caused by roadway capacity constraints, frequent accidents, and various factors that cause unanticipated congestion. Travelers using the Project would no longer need to drive through the most congested parts of the corridor in the Cajon Pass for interstate or commuter trips, thereby avoiding idling and inefficient stop-and-go traffic conditions.

By 2045, travel speeds are expected to decrease on all but one segment of I-15 between the San Bernardino Valley and Apple Valley in the AM peak period, and travel speeds on most segments would also decrease—some by more than 10 mph—in the PM peak period (SCAG 2020a). Based on the Project Report for the I-15 Corridor Study (addition of express lanes), traffic volumes on I-15 between I-10 and SR 210 are expected to increase in the range of 31 to 38 percent from 2014 to 2045. The Project Report states the existing level of service (LOS) is acceptable in most locations but that there are bottlenecks in each direction of travel that degrade traffic operation, especially between Baseline Road and SR 210. Because the express lane project is increasing capacity by adding express lanes, the traffic volumes are projected to increase by an additional 27 percent. The Project Report further mentions that, although the express lane project would improve conditions in the general purpose lanes in many segments, it would cause the segment between the I-10 and Fourth Street to worsen in the PM peak hour (both directions). In the AM peak hour, the segment between Arrow Route and Fourth Street would worsen in the southbound direction. The segment between Baseline Road and SR 210 would continue to operate at over capacity conditions in all scenarios.

The Southern California Association of Governments' (SCAG) Connect SoCal Goods Movement Technical Report identifies I-15 as part of the U.S. Department of Transportation's (USDOT) Primary Highway Freight Network and among the network segments that carry the highest volumes of truck traffic in the region. It also identifies the entirety of the Cajon Pass as a truck bottleneck, with over 15,000 annual vehicle hours of delay (SCAG 2020b).

As documented above, given the attractiveness of the origins and destinations, the transportation capacity constraints on I-15 as described in current and predicted average daily traffic and LOS limit reasonable highway access between Rancho Cucamonga, Hesperia, and Victor Valley.

2.3.2.2. Travel Demand

The anticipated substantial increases in population, housing, and employment in San Bernardino County will result in greater demand for transportation facilities and services, including increased travel demand that will result in congestion on roadways if capacity does not keep up with the demand. The proposed Hesperia station would provide convenient connections between High Desert communities and the more urbanized San Bernardino Valley and Metropolitan Los Angeles. The High Desert provides lower-cost housing options for Southern California residents, while the Rancho Cucamonga/Ontario area around Ontario International Airport has become a significant employment center.

SCAG forecasts, in its 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), that the population of San Bernardino County will grow to 2,815,000 by 2045, a 29 percent increase from the U.S. Census Bureau's 2018 population estimate of 2,180,085, and that the number of households will grow to 875,000, a 39 percent increase over the 2018 household estimate of 630,633 (SCAG 2020a; U.S. Census Bureau 2020). Additionally, the 2020-2045 RTP/SCS forecasts employment in San Bernardino County will increase to 1,064,000 by 2045, a 72 percent increase from the U.S. Census Bureau's estimate of 617,828 in 2018.

While the proposed Victor Valley station site would be located at the convergence of the highways *en route* to Las Vegas for Southern California travelers, the Rancho Cucamonga station would be closer to major population centers in Southern California. Compared to the Victor Valley station, the proposed HSR station in Rancho Cucamonga, located about 45 miles east of downtown Los Angeles, would provide more direct access to the densely populated centers in Southern California for both drivers and Metrolink riders; 87 percent of the potential market for trips between Las Vegas and Southern California (equivalent to 42.7 million of the one-way, in-scope trips in 2025) live within 75 miles of the location of the proposed Rancho Cucamonga station.

The proposed station in Rancho Cucamonga, with a Metrolink connection to Los Angeles, would further meet the forecasted demand of the 49.1 million one-way trips between Las Vegas and Southern California estimated in 2025. Similarly, the proposed Hesperia station would be at the convergence of U.S. Highway 395 (US 395) and I-15, so it would serve commuters to Greater Los Angeles from the major corridors in Victor Valley.

The Project would also support SCAG's Connect SoCal Passenger Rail Technical Report, which identifies closing connectivity gaps as a major strategy to increase mobility and improve sustainability (SCAG 2020c). The Project would facilitate transit connections and would allow residents of the Greater Los Angeles and the Riverside-San Bernardino-Ontario Metropolitan areas to travel exclusively by mass transit and passenger rail to and from the High Desert of San Bernardino. Southern California residents could take the Los Angeles Metro rail, regional bus systems, Amtrak, or Metrolink to Los Angeles Union Station to connect via the Metrolink San Bernardino Line to the Rancho Cucamonga station. Residents could also take the planned West Valley Connector Bus Rapid Transit service that will operate between the Pomona station on the Metrolink Riverside Line in eastern Los Angeles County and the Rancho Cucamonga station.

Additionally, SBCTA and SCAG's 2015 Advanced Regional Rail Integrated Vision – East (ARRIVE Corridor) plan proposes strategies for transitioning the Metrolink San Bernardino Line, which would serve the Rancho Cucamonga station, from a traditional commuter rail line to one that promotes transit-oriented development. Improvements to Metrolink, its transit connections, and additional development of the station areas with transit-supportive uses at greater densities and intensities will encourage the formation of areas that are walkable and that provide mobility options in the region. The Project would further the goals of the ARRIVE Corridor plan by increasing the activity centers that can be accessed by Southern California's rail network. The Metrolink Southern California Optimized Rail Expansion (SCORE) program also includes capital improvements within the Metrolink corridor that would improve service to

Rancho Cucamonga, including the Marengo Siding Extension, El Monte Siding Extension/Tyler and Cogswell Grade Crossing Improvements, Rancho Siding Extension, and Lone Hill to White Double Track.

In 2010, the San Bernardino Associated Governments (the predecessor agency to SBCTA) completed the Victor Valley Long Distance Commuter Needs Assessment, which identified a phased set of commuter improvement projects. Those projects ranged from expanded park and ride facilities to an express bus service linking the Victor Valley area of the High Desert to the Rancho Cucamonga Metrolink station. The Joshua Street Park & Ride is next to the Project's proposed station in Hesperia. Such commuter-focused planned improvements highlight the need for travel options that reduce the number of single occupancy automobiles on I-15 in San Bernardino County, particularly through the Cajon Pass.

FHWA's Southern California Regional Freight Study (FHWA 2020) identifies I-15 as a major interstate highway corridor that provides access to the interior of the United States for goods arriving at the ports of the Los Angeles region and ranks it among the highest truck volume corridors in the western United States. Caltrans' 2015 Interregional Transportation Strategic Plan identifies I-15 as a high priority corridor, among six nationally identified "Corridors of the Future," and a "vital link between Mexico, Southern California, and locations to the north and east of the region." I-15 also connects Southern California and the southwestern United States to the San Joaquin Valley's agricultural goods via SR 58. By providing passenger rail capacity in the corridor, the Project would help maintain freeway capacity for truck freight use by removing passenger vehicles from the roadway network.

2.3.2.3. *Safety*

Alternatives to automobile travel would provide improved safety conditions on the I-15 corridor with diversion of vehicle trips to HSR. On a national level, comparing miles traveled via commercial aircraft, train, and automobiles on highways, auto travel on highways has by far the highest rate of passenger fatalities per mile traveled. In 2019, the average rate of passenger fatalities from highway travel was more than 75 times the comparable rate for travel by air and 34 times the comparable rate by rail. For 2016, the Bureau of Transportation Statistics' National Transportation Statistics (BTS 2018) reported a rate of passenger fatalities per 100 million passenger miles traveled by highway nearly 10 times greater than the rates for travel by air or rail. HSR is one of the safest forms of travel.

The California Office of Traffic Safety ranks San Bernardino County 16th-worst out of 58 counties for total fatal and injury crashes in 2018 (the most recent year of data available) (California OTS 2022). According to the University of California, Berkeley, and SafeTREC's Transportation Injury Mapping System, there were 819 collisions with one or more deaths or injuries along I-15 in San Bernardino County in 2019 (UC Berkeley and SafeTREC 2020). Of these, nearly one-quarter (199) occurred in the 12 miles of the Cajon Pass, although the Cajon Pass accounts for only 6.5 percent of the length of I-15 in the county.

A study by the I-15 Mobility Alliance found that the segment of I-15 from I-215 in San Bernardino to I-40 in Barstow had a fatality rate 0.009 per million VMT, well above the alliance's performance goal of 0.003 fatality per million. Segments immediately north of that

segment were even more deadly (I-15 Mobility Alliance 2017). By connecting Victor Valley to Rancho Cucamonga, the Project would allow more travelers to stay off the most dangerous segments of I-15.

2.4. Project Elements

2.4.1. Build Alternative

The Build Alternative (i.e., the Project) consists of a proposed HSR passenger railway with associated infrastructure, including two proposed passenger stations. Nearly all of the Project would be built within the I-15 right-of-way. Near the proposed southern terminus in Rancho Cucamonga, approximately 1 mile of the rail alignment would be in city street, railroad, or utility rights-of-way.

The proposed rail alignment would be located within the median of the I-15 freeway between Victor Valley and Rancho Cucamonga except at the approach to the proposed Rancho Cucamonga station. The rail alignment would be predominately at grade (the same elevation as the existing freeway), with select segments of the alignment on aerial structures or in a trench to allow for grade separations (including four BNSF and three Union Pacific railroad crossings) and to provide a safe incline for train operation. The rail alignment would be predominantly single-track, with limited double-track segments in Victor Valley (2.6 miles, including 0.9 mile constructed as part of the DesertXpress High-Speed Passenger Train Project), Hesperia (5.5 miles), and Rancho Cucamonga (2 miles). This would allow for 45-minute headways between Victor Valley and Rancho Cucamonga and, with additional infrastructure, 22.5-minute headways after year 11. These headways, along with the ability to couple trains (double passenger capacity), would address projected ridership needs for the foreseeable future.

For analytical purposes, the Build Alternative is described in three sections. Sections were developed to reflect similarly-developed areas with similar environmental sensitivity and are shown on Figure 1. The sections include:

- **Section 1:** High Desert – from the Victor Valley station, continuing south along I-15, to the I-15/Oak Hill Road interchange in Hesperia
- **Section 2:** Cajon Pass – from the I-15/Oak Hill Road interchange, continuing south along I-15, through the Cajon Pass, to the I-15/Kenwood Avenue interchange
- **Section 3:** Greater Los Angeles – from the I-15/Kenwood Avenue interchange in San Bernardino, continuing south along I-15, through the existing Metrolink station in Rancho Cucamonga to Haven Avenue

2.4.2. Section 1 – High Desert

The proposed rail alignment would connect to the DesertXpress High Speed Train alignment approximately 1 mile south of the Victor Valley station in Apple Valley. The Victor Valley station was proposed by the DesertXpress High Speed Train Project (DesertXpress Project), which was approved in 2011 and later modified and approved again by the NEPA reevaluation (FRA 2020). From the connection point, the alignment would continue south within the I-15 median. The

rail alignment throughout Section 1 would be predominantly single-track; however, the rail alignment would be double-track north of Stoddard Wells Road to the northern terminus of the alignment as it approaches the train platforms of the Victor Valley station. The Project would include a new structure over the existing CEMEX railroad bridge. Depending on the outcome of future coordination with CEMEX, the existing railroad bridge may be reconstructed as part of the DesertXpress project, in which case the alignment would run at grade in the I-15 median under the railroad bridge.

Brightline West would build a new I-15 southbound on-ramp and bridge at South Stoddard Wells Road to replace similar existing facilities farther south. This, in turn, would require modifications of I-15 up to and including the Mojave River crossing.

At the Mojave River, a new rail bridge would be constructed within the I-15 median. The existing I-15 bridge would be widened to accommodate the rail line. The alignment would then continue at grade in the I-15 median with minor roadway widenings for the remainder of Section 1. This portion of the alignment would interface with the following interchanges: Stoddard Wells Road North, Stoddard Wells Road South, D Street/E Street, Mojave Drive, Roy Rogers Drive/Hook Road, Palmdale Road, La Mesa Road/Nisqualli Road, Bear Valley Road, Main Street/Phelan Road, Joshua Street, US 395, Ranchero Road, and Oak Hill Road.

A new substation would be constructed to support the Project along I-15, between Mesa Street and Mojave Street. The area is currently largely undeveloped, other than existing overhead power lines and utility access.

Hesperia Station

Section 1 includes a new passenger station in Hesperia, at the I-15/Joshua Street interchange. This station would serve daily travelers between the High Desert of San Bernardino County and the Los Angeles Basin. This would be a limited service for select southbound AM and northbound PM weekday on selected Brightline West train coaches. The northbound on-ramp to Joshua Street would be realigned closer to the freeway, and station parking would be on the north side of Joshua Street. Parking would be accessed at the location of the existing northbound ramp intersection. To accommodate the rail alignment, the existing US 395 northbound connector and the existing Joshua Street bridge would be replaced. The Joshua Street bridge would be reconstructed at a higher elevation, requiring raising of the I-15 ramps and Mariposa Road. The passenger platform would be located within the I-15 median, with direct access from the reconstructed Joshua Street bridge. This in-line station would be located at the southern end of the double-track segment in Hesperia. The project design includes adequate parking areas to accommodate parking demand.

Design Elements

Section 1 of the Project includes the following design elements.

- **Reconstructions/Interchange Modifications:** Widening portions of the I-15 freeway and modifications to interchanges at Stoddard Wells Road southbound on- and off-ramp, D Street/E Street, Mojave Drive, Roy Rogers Drive/Hook Road, Palmdale Road, La Mesa

Road/Nisqualli Road, Bear Valley Road, Main Street/Phelan Road, US 395, Ranchero Road, Oak Hill Road, and Joshua Street

- New Substation: Construction of a new substation along I-15 between Mesa Street and Mojave Street
- Station Area: Hesperia station platform, station access/infrastructure, surface parking lot accommodating approximately 360 vehicles, bus pick up/drop off areas, Kiss and Ride

2.4.3. Section 2 – Cajon Pass

Beginning at the I-15/Oak Hill Road interchange and traveling south, the alignment would run on the west side of the I-15 northbound lanes at grade and within the existing I-15 right-of-way. In this area, the I-15 runs through the San Bernardino National Forest for approximately 12 miles. The rail alignment throughout Section 2 would be entirely single-track. The Project would require relocation of California Highway Patrol (CHP) emergency crossovers where the new guideway would block existing crossovers. Four new crossovers would be placed to take advantage of existing CHP access between the separated I-15 alignments in the following locations:

- West of Forestry Road crossing the northbound lanes
- Approximately 1.25 miles in the southbound direction along I-15 from the crossover near Forestry Road, across the northbound lanes
- West of the Baldy Mesa (Trestles) OHV Staging Area, across the northbound lanes
- West of Perdew Canyon and approximately 1.25 miles north of Mathews Ranch Road, across both the north and southbound lanes

The alignment would remain at grade throughout Section 2.

Where I-15 northbound and southbound lanes reconnect at the foot of the Cajon Pass, the rail alignment would be within the I-15 median. This would require widening portions of the I-15 freeway and minor realignment of ramps at the I-15/SR 138 interchange.

Design Elements

Section 2 of the Project includes the following design elements.

- Bridges/Viaducts: None
- Reconstructions/Interchange Modifications: Widening portions of the I-15 freeway including several miles of retained fill, and realignment of ramps at the I-15/ SR 138 interchange
- Other Facilities: CHP emergency crossovers

2.4.4. Section 3 – Greater Los Angeles

Beginning at the Kenwood Avenue interchange, the proposed rail alignment would continue at grade in the I-15 median. At the I-15/I-215 interchange, the alignment would continue between

the divided I-15 freeway at the same elevation as the freeway including the Devore interchange viaduct, curving to the southwest parallel to freeway. The rail alignment would require I-15 freeway and interchange ramp modifications at Baseline Avenue, SR 210, Beech Avenue, Duncan Canyon Road, Sierra Avenue, and Glen Helen Parkway .

The rail alignment would transition to an aerial alignment and elevate over the I-15 southbound lanes south of Church Street and cross at Foothill Boulevard. It would continue along the west side of the I-15 freeway on an elevated alignment to enter the San Gabriel Subdivision and Eighth Street corridor. The alignment would transition onto an aerial structure and would turn west, running parallel to and partially within the existing rail corridor and partially within the Eighth Street right-of-way before entering the existing Rancho Cucamonga Metrolink station area on an elevated structure. The rail alignment would maintain a single-track configuration prior to the existing the freeway median south of Church Street, where it would transition to a double-track configuration for the remaining distance to the Rancho Cucamonga station. At the Rancho Cucamonga station, an elevated station with a center platform and tracks on either side would be constructed parallel to and above the existing eastbound Metrolink platform, extending over Milliken Avenue. A new parking structure is proposed at Rancho Cucamonga station and would replace existing surface parking to accommodate increased parking demand. The project design includes adequate parking areas to accommodate parking demand in the opening year.

Design Elements

Section 3 of the Project includes the following design elements.

- Bridges/Viaducts: Viaduct of approximately 3.5 miles to cross I-15 southbound lanes and along existing rail corridor near Rancho Cucamonga station
- Reconstructions/Interchange Modifications: I-15 freeway and interchange ramp modifications at SR 210, Beach Avenue, Duncan Canyon Road, and Glen Helen Parkway
- Station: Dedicated Brightline West station adjacent to the existing Rancho Cucamonga Metrolink station, with vertical circulation down to the platform, shared access with existing Metrolink station, a shared parking structure for vehicles, and a bus plaza

2.5. Construction

In general, construction activities would consist of clearing, grading, excavation, placing fill, stockpiling materials, constructing bridges and walls, installing drainage, installing sub-ballast and subgrade, placing and anchoring railroad ties, placing ballast material and tamping ballast, constructing stations and substations, mobilization, and demobilization. Construction equipment would likely include dump trucks, excavators, loaders, cranes, water trucks, backhoes, scrapers, rollers, ballast tampers, concrete trucks, and drill rigs.

For new and reconstructed overpasses and bridges, construction activities would include clearing, grubbing, demolition of existing structures, excavation and drilling for foundations, concrete pouring, formwork and rebar placement for foundations, falsework installation, construction of bridge decking, placement of ballast and ties, mobilization, and demobilization.

Most construction activities would occur on Caltrans right-of-way. Some, for the rail stations and power substations, would occur on public property owned by the City of Rancho Cucamonga, SBCTA, or State of California. Temporary construction areas are properties that would be temporarily utilized for construction staging and storage. The Project would require temporary construction areas along the alignment between Victor Valley and Rancho Cucamonga. The area of construction throughout the alignment would be long and narrow, hewing closely to the alignment centerline. Localized exceptions would occur for construction of the paralleling substation, which would be located along the southeastern side of Mariposa Road between Mesa Street and Mojave Street at the Southern California Edison (SCE) Boulder Dam–San Bernardino transmission lines and for the proposed Hesperia and Rancho Cucamonga stations with their parking and adjacent facilities.

“Temporary works” for construction would include laydown/staging areas, i.e., illuminated, enclosed, secured, stabilized, graded yards that would serve as a base for construction operations for a particular part of the Project. The footprints of staging areas would vary according to the space available, but they would provide sufficient space for unloading, storage, sorting, and distribution of concrete and other building materials, equipment, and large components required for a particular construction segment or structure. Each staging area would typically include a superintendent’s office, portable toilets, employee vehicle surface parking, space for truck loading and unloading, and heavy equipment storage. At construction areas for bridges, the staging areas would have storage space for steel and timber falsework used in supporting overhead concrete construction.

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3. Methodology

3.1. Relevant Regulations, Plans, and Policies

Consideration of potential impacts on the existing visual environment is informed by federal, Federally Recognized Tribes', state, and local rules and policies. The rules and policies focus on preserving visual quality, minimizing conflicts, improving aesthetic character, and mitigating adverse effects. Some federal regulations and policies that affect the Project are listed below.

- Section 4(f) of the Department of Transportation Act of 1966 (23 U.S.C. 138 and 49 U.S.C. 303). The act became law on October 15, 1966. It is aimed to preserve the natural beauty of the countryside, public park and recreation lands, wildlife and waterfowl refuges, and historic sites.
- FHWA *Guidelines for the Visual Impact Assessment for Highway Projects* (FHWA 1988, 2015)¹
- BLM *Manual H-8410-1 – Visual Resource Inventory* (BLM 1986a)

3.2. Study Area

The study area for visual and aesthetic resources is the portion of the viewshed of the Project (i.e., Build Alternative) that would be clearly seen by sensitive viewers at publicly accessible locations; such viewers include motorists along I-15, motorists on urban streets and frontage roads, pedestrians and bicyclists in developed urban areas, and recreational users along trails and trailheads. A viewshed is the geographical area from which an object is visible. It can include all surrounding points in line of sight with that object, and it excludes points that are beyond the horizon or obstructed by terrain and other features such as buildings and vegetation.

The area of analysis for effects related to visual quality and visual resources includes the available viewsheds, or the visible environment of the project alignment. It includes views to the Stoddard Mountains to the north across the Mojave River, views of the San Bernardino Mountains and San Gabriel Mountains to the south, and views into the urban center of Rancho Cucamonga. In many locations along the alignment of the Project, views of project components, such as guideways, stations, trains, retaining walls, and overhead catenary poles and wires, would be partially blocked from sensitive viewers by vegetation, buildings, or terrain. In densely developed areas, the viewshed of the Project is frequently between approximately 100 feet and 500 feet on either side of the project footprint. Where the proposed railway would cross waterbodies, the I-15 freeway, or ravines, project components would be clearly seen from beyond 500 feet. At those crossings, the study area is extended out to approximately 0.5 mile on either side of the Project. The study area encompasses the entire project area, as defined in

¹ Caltrans uses the FHWA guidelines for visual impact assessment.

Section 2.2. For analytical purposes, the study area is described in three sections; see Section 2.4.

3.3. Methods Used

This visual quality assessment compares existing visual characteristics in the study area to the expected conditions during and after the Project is built. The methods used incorporate key aspects of Section 4(f) of the Department of Transportation Act, and of the visual guidance provided by BLM (1984, 1986a, 1986b) and FHWA (1988, 2015). BLM and FHWA classify the visual quality and sensitivity of visual landscapes using ratings of low, medium, and high.

BLM establishes visual management land classifications using ratings of Class I through Class IV, as follows:

- Class I: The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.
- Class II: The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen but should not attract the attention of the casual observer. Any changes must repeat the basic element of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
- Class III: The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate or average. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
- Class IV: The objective of this class is to provide for management activities that require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic element.

The FHWA methodology evaluates changes to the visual character of a view that would be seen by sensitive viewers as well as changes to visual quality.

Outreach to local jurisdictions and agencies was performed to identify KOPs and sensitive viewer groups. However, feedback was not received. Therefore, for purposes of this report, the following sensitive viewer groups in the study area were considered for this assessment:

- Alignment neighbors (views toward/of the project alignment and related facilities). This group includes residents, pedestrians, recreational area users, and commercial district patrons and workers.

- Alignment/highway users (views from the project alignment and the I-15 corridor, including frontage roads). This group includes motorists, HSR passengers, pedestrians and bicyclists.

Visual character is a non-evaluative description of a viewed landscape. Visual character can describe a landscape in terms that many people understand. FHWA assesses visual impacts by considering three components of the landscape—its vividness, intactness, and unity. The three components that together determine visual quality are as follows:

- Vividness is the degree of drama, memorability, or distinctiveness of the landscape. Vividness is composed of four elements—landform, vegetation, water features, and human-made elements—that usually influence the degree of vividness. It refers to the visual impression received from contrasting elements as they combine to form a striking and distinctive visual pattern.
- Intactness is a measure of the visual integrity of the natural and human-built landscape and its freedom from encroaching elements. Intactness is composed of two primary elements—development and encroachment—that influence the degree of intactness.
- Unity is the degree of visual coherence and compositional harmony of the landscape when it is considered as a whole. High unity frequently attests to the careful design of individual components and their relationship in the landscape.

For example, in the study area, views of the distant mountains, which are snowcapped much of the time, add to the visual vividness. Intactness is high because of the lack of visually intrusive, tall, vertical elements in the landscape, except in commercial areas and urban centers. The desert vegetation, soil, and rock colors provide unity and are important elements of the existing visual quality.

Visual impacts of the Project were assessed by combining the severity of visual resource changes with the degree to which people are likely to oppose the visual change. In general, intrusions into areas of high vividness, intactness, and/or unity would be considered as adverse effects, depending on the length of time a particular area is visible, such as passerby users or motorist.

Vividness, intactness, and unity are typically rated numerically and are considered together to determine overall visual quality. However, for purposes of this assessment, the scale was simplified to three general levels of visual quality: low, average, and high. Descriptions of the three simplified visual quality categories are as follows:

- **Low Visual Quality:** Areas with low visual quality have some combination of features that seem visually out of place, lack visual coherence, do not have compositional harmony, and/or might contain unsightly elements that detract from the natural landscape.
- **Average Visual Quality:** Areas with average visual quality are commonly occurring or average-appearing landscapes that have a generally pleasant appearance but might lack enough vividness (distinctiveness, memorability, and drama), intactness (the elements in the views “fit” with their natural and human-built surroundings), and unity

(compositional harmony) to place them in the high visual quality category. Most views fall into this category.

- **High Visual Quality:** Areas with high visual quality must be outstanding in terms of being very memorable, distinctive, unique (in a positive way), and/or intact. They can be natural (such as the Mormon Rocks), park-like, or urban, with urban areas displaying strong and consistent architectural and urban design features.

The study area includes the available viewshed, or the visible environment, surrounding the Project. As noted above, the visual quality assessment of the Project considers: 1) views from the proposed railway and station/maintenance facilities as well as 2) publicly accessible viewpoints toward those project elements. The available viewsheds from any given viewpoint depend on the surrounding topography and existing level of development. In flat, undeveloped areas, the viewshed is typically larger than the available viewshed in a dense urban environment with existing buildings or in an area with diverse and substantial changes in topography, such as hills and mountains.

The analysis team selected multiple KOPs, based on BLM and FHWA guidance, for visual representation in this report. The KOPs were selected to represent different sections of the Project, to capture views from population centers and other areas with high concentrations of public views, and to highlight visual changes in known areas of visual sensitivity. The selection of KOPs also considered the public accessibility of the viewpoint, angle of observation, number of viewers, duration of time the Project is in view, relative bulk and scale of the structures, light conditions, and viewer groups that have high potential to be affected by the Project considering the viewers' visibility and sensitivity. To compare views from KOPs before and after the Project is built, the team photographed existing views, then prepared visual simulations that depict the relative scale and extent of the Project from the available viewshed. The team compared the KOP photographs and visual simulations to evaluate the potential changes to color, line, form, and texture of the viewshed. Potential visual impacts were determined by assessing changes to the visual resources and predicting viewer responses to those changes.

4. Affected Environment

The study area described in Section 3.2 was selected to represent the geographical area from which the elements of the Project would be visible. It includes all surrounding points in line of sight with project elements and excludes points that are beyond the horizon or obstructed by terrain and other features such as buildings and vegetation.

A key component of the affected environment for visual impacts is the viewer. As noted in Section 3.3, potential visual impacts were determined by assessing changes to the visual resources and predicting viewer responses to those changes. The study team selected KOPs based on a number of criteria, as described in Section 3.3. Figure 2 shows the KOP locations along the project alignment. As described in Section 2 of this report, the Project is described in three sections for analytical purposes. The information about KOPs in the study area is presented in accordance with those sections: Section 1 (High Desert), Section 2 (Cajon Pass), and Section 3 (Greater Los Angeles). This section includes a photograph showing a representative view at each KOP. The accompanying narrative describes the existing condition, which represents the affected environment, and identifies the visual quality rating (low, average, or high).

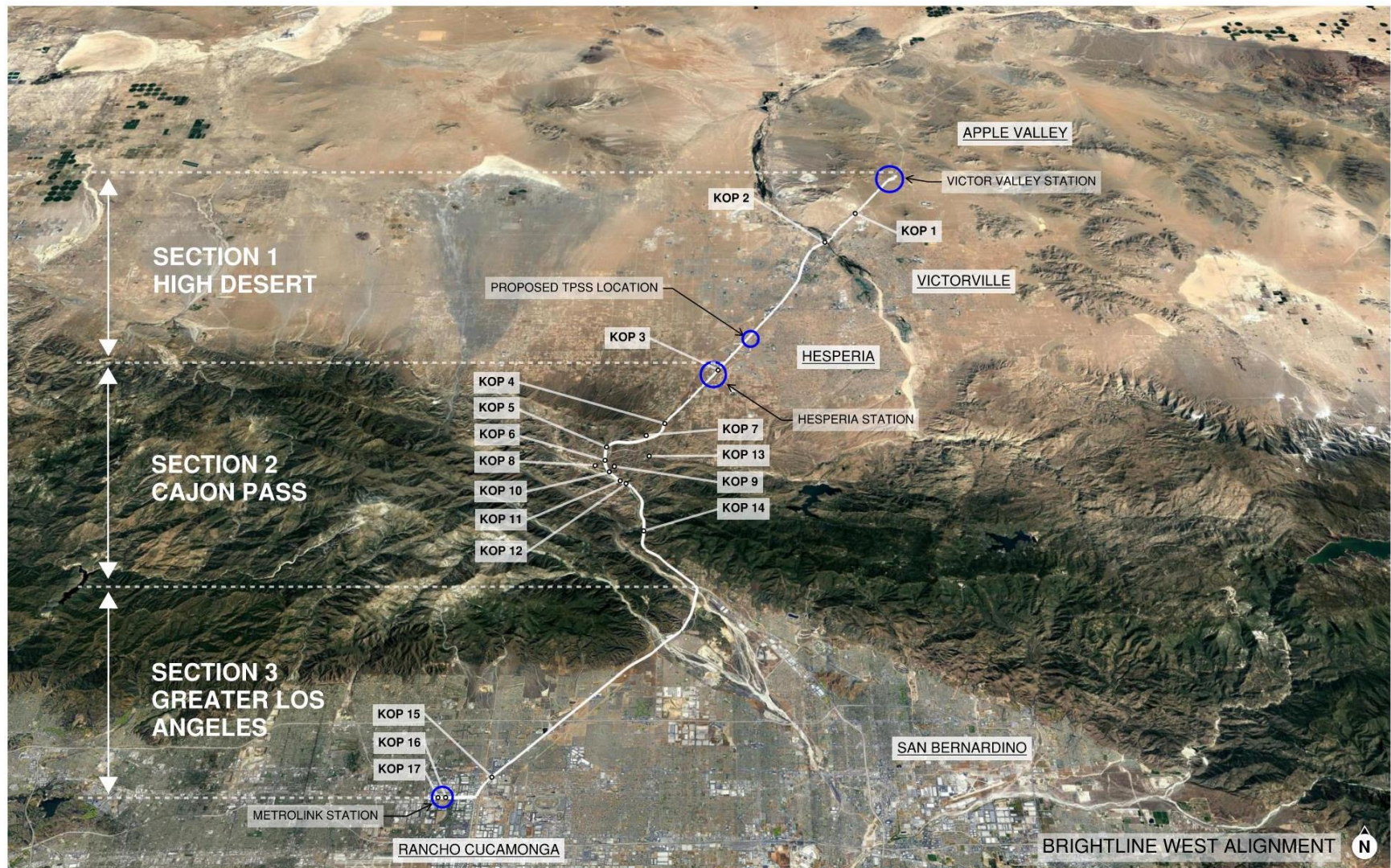


Figure 2. Locations of Key Observation Points

4.1. Section 1, High Desert

The High Desert section begins at the Victor Valley station, which is proposed by a separate project. It continues south along I-15 and ends at the I-15/Oak Hill Road interchange in Hesperia. KOP-1 and KOP-2 are in Section 1 and represent views of distant mountain ranges, including Silver Mountain and Stoddard Mountain; the Mojave River and its floodplain; and variations in vegetation character along the route. According to the BLM Visual Inventory (BLM 1986a) distant views north of the Mojave River, to the east and west from the alignment, are Class II and Class IV resources. The KOPs in Section 1 primarily represent viewer groups such as motorists traveling along I-15 and pedestrians traveling along frontage roads.

4.1.1. Key Observation Point 1, Victor Valley

Figure 3 shows a view from KOP-1. It represents the perspective of a motorist traveling northbound on I-15, looking northeast toward the CEMEX overcrossing and Quarry Road. The landscape character consists of various rolling embankments, with vegetation typical of high desert alluvial fans, in the foreground and middleground. The bridge crossing is dominant in this view and blocks the distant views of Silver Mountain and Stoddard Mountain. Low-profile power poles and lines are visible just north of the bridge crossing.

The area has an average degree of vividness due to the interrupted views of the landscape and mountains beyond. The intactness is average due to the number of human-built, vertical features (freeway, bridge crossing, and power lines) in the landscape. The unity is average due to the presence of I-15 in the view and other transportation-related structures that would be seen on a temporary basis as motorists are traveling at highway speeds. Visual quality is ranked as average at KOP-1.

Existing Condition, KOP-1



Rating

| | |
|-----------------|---------|
| Vividness: | Average |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Figure 3. Key Observation Point 1, Victor Valley

4.1.2. Key Observation Point 2, Victorville

Figure 4 shows a view from KOP-2. It represents a view, looking northeast, from the perspective of a motorist on the I-15 northbound on-ramp crossing over the Mojave River and its floodplain. Distant views to the east and west are identified as Class II and Class IV resources (BLM 1986a). The view illustrates a distinct change in landscape character and vegetation from the desert terrain described at KOP-1. At KOP-2, the terrain slopes gently toward the river, and the rocky bluffs of Elridge Ridge and freeway signs are in the middleground. The vegetation consists of willows, grasses, and cottonwoods in the riparian area, which can be seen on both sides of the freeway.

The vividness, intactness, and unity of the view are average because of the unique character of the landscape and difference in vegetation from most other areas in the study area. The visual quality is ranked as average.

Existing Condition, KOP-2



Rating

| | |
|-----------------|---------|
| Vividness: | Average |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Figure 4. Key Observation Point 2, Victorville

4.2. Section 2, Cajon Pass

The Cajon Pass section begins at the I-15/Oak Hill Road interchange in Hesperia. It continues south along I-15, through the Cajon Pass, to the I-15/Kenwood Avenue interchange in San Bernardino. In Section 2, I-15 runs through the San Bernardino National Forest for approximately 12 miles. This section also includes the interchange of I-15 and SR 138 and the Serrano topographic feature of “Coyote’s Nose.” KOP-3 through KOP-14 are in Section 2 and represent views of distant mountain ranges, including Silver Mountain and Stoddard Mountain to the north, and San Gabriel Mountains and San Bernardino Mountains to the south. Other views include the high desert valley, commercial development adjacent to I-15 in Hesperia, and the unique rock formations at Cajon Pass, including the Mormon Rocks. The KOPs in Section 2 primarily represent viewer groups such as motorists traveling along I-15, recreational users at trailheads, and pedestrians traveling along frontage roads.

4.2.1. Key Observation Point 3, Hesperia

Figure 5 shows a view from KOP-3 near Hesperia. It represents a motorist’s view from southbound I-15, south of Joshua Street, looking southwest toward the existing Joshua Street overcrossing and distant San Bernardino Mountains and San Gabriel Mountains. The mountains serve as a visual backdrop to the relatively flat terrain of the high desert landscape.

The vividness and intactness at KOP-3 are considered average. The unity is ranked as low due to the built elements in the foreground and minor interruption of views from traveling motorists at freeway speeds. The overall visual quality is ranked as average.

Existing Condition, KOP-3



Rating

| | |
|-----------------|---------|
| Vividness: | Average |
| Intactness: | Average |
| Unity: | Low |
| Visual Quality: | Average |

Figure 5. Key Observation Point 3, Hesperia

4.2.2. Key Observation Point 4, Cajon Pass

Figure 6 represents the view from KOP-4. It shows a view of a motorist traveling northbound on I-15, looking northeast alongside the Old Spanish Trail toward the Oak Hill water tower at "Cajon Summit. In Figure 6, the water tower is visible in the distance and appears to be left of the freeway. Although the water tower is not historic, it is considered a recognizable landmark for motorists travelling on the freeway. On both sides of the northbound lanes of the freeway are rolling embankments covered in high desert vegetation. Various breaks in the embankments allow for CHP and emergency access, but they are not considered to affect the visual quality.

Vividness and intactness are ranked as average because of the natural desert elements and rolling topography in the viewshed. The unity is ranked as average because of the transportation network cutting through the natural rolling terrain. Visual quality at KOP-4 is ranked as average.

Existing Condition, KOP-4



Rating

| | |
|-----------------|---------|
| Vividness: | Average |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Figure 6. Key Observation Point 4, Cajon Pass

4.2.3. Key Observation Point 5, Cajon Pass

Figure 7 represents the view from KOP-5. It shows a view of a motorist traveling northbound on I-15, looking north alongside the Old Spanish Trail toward Cajon Summit. On both sides of the northbound lanes of the freeway are rolling embankments covered in high desert vegetation. Various breaks in the rolling terrain offer views of the surrounding mountains, but they are not considered to affect the visual quality.

Vividness and intactness are ranked as average because of the natural desert elements in the viewshed. The unity is ranked as average because of the transportation network cutting through the natural rolling terrain. Visual quality at KOP-5 is ranked as average.

Existing Condition, KOP-5



Rating

| | |
|-----------------|---------|
| Vividness: | Average |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Figure 7. Key Observation Point 5, Cajon Pass

4.2.4. Key Observation Point 6, Cajon Pass

Figure 8 represents the view from KOP-6. It shows a view of a motorist traveling northbound on I-15, looking north toward the split of northbound and southbound I-15 south of the summit of Cajon Pass. The view is vast of the surrounding San Gabriel Mountains to the west and San Bernardino Mountains to the east. The landscape is a sparse collection of high desert sage vegetation. The SCE Boulder Dam–San Bernardino transmission lines and towers are clearly visible in the foreground.

Vividness and unity are ranked high because of the vast distant views of the mountains in the background and natural desert elements in the viewshed as a whole. The intactness is ranked as average because the existing transportation corridor elements and transmission line towers in the foreground disrupt and lower the visual cohesion and integrity of the landscape and view. Visual quality at KOP-6 is ranked as high.

Existing Condition, KOP-6



Rating

| | |
|-----------------|---------|
| Vividness: | High |
| Intactness: | Average |
| Unity: | High |
| Visual Quality: | High |

Figure 8. Key Observation Point 6, Cajon Pass

4.2.5. Key Observation Point 7, Cajon Pass/San Bernardino National Forest

Figure 12 represents the view from KOP-7 near the summit of Cajon Pass. It shows a typical view of a recreational hiker looking southeast I-15 northbound and southbound lanes are clearly visible, and the Cajon Valley is in the background. The view represents a cultural viewshed and looks toward the natural formation of the Mormon Rocks and the historic Atchison, Topeka & Santa Fe Railway (AT&SF) line; Coyote’s Nose is in the middleground, located east of the northbound freeway. The mountain ranges and variations in topography are the dominant elements in the view beyond the freeway.

The vividness of the view is high due to the memorable visual experience of the mountain ranges, Coyote’s Nose, and Mormon Rocks. The intactness and unity are considered average because of the freeway in the foreground, which intrudes upon the natural landscape character. The visual quality at KOP-7 is ranked as average.

Existing Condition, KOP-7



Rating

| | |
|-----------------|---------|
| Vividness: | High |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Figure 9. Key Observation Point 7, Cajon Pass/San Bernardino National Forest

4.2.6. Key Observation Point 8, Cajon Pass/San Bernardino National Forest

Figure 10 represents a motorist's view and cultural viewshed from KOP-8. The view is from SR 138, west of Cajon Junction, looking east across Cajon Junction toward Coyote's Nose. The dominant elements in this view are the natural formation of Coyote's Nose in the middleground; mountain ranges in the background; AT&SF line, with I-15 behind and above it, in the middleground; and SR 138 in the foreground. The view captures some commercial development and signage at the base of Coyote's Nose, near the northbound I-15 lanes.

The vividness of the view is high due to the memorable visual experience of Coyote's Nose. The intactness and unity are considered average because the commercial buildings, highways, and railway line intrude upon the natural landscape character. The visual quality at KOP-8 is ranked as average.

Existing Condition, KOP-8



Rating

| | |
|-----------------|---------|
| Vividness: | High |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Figure 10. Key Observation Point 8, Cajon Pass/San Bernardino National Forest

4.2.7. Key Observation Point 9, Cajon Pass/San Bernardino National Forest

Figure 12 represents a motorist’s view, looking southwest toward Coyote’s Nose from KOP-9 along SR 138 on the westbound shoulder. The view is a cultural viewshed and looks toward and beyond the natural formation of Coyote’s Nose and high desert vegetation to the west (in the right half of the photo) and the San Gabriel Mountains in the background. The middleground includes a distant view of the historic AT&SF line, along with the interchange of SR 138 and I-15 and ancillary temporary gravel parking areas.

The vividness of the view is high because of the memorable visual experience of Coyote’s Nose and the expansive landscape view of the San Gabriel Mountains. The intactness and unity are considered average because the interchange and freeway ancillary elements intrude upon the natural landscape character. The visual quality at KOP-9 is ranked as average.

Existing Condition, KOP-9



Rating

| | |
|-----------------|---------|
| Vividness: | High |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Figure 11. Key Observation Point 9, Cajon Pass/San Bernardino National Forest

4.2.8. Key Observation Point 10, Cajon Pass/San Bernardino National Forest

Figure 12 represents the view, looking northwest toward the Mormon Rocks from KOP-9 near the summit of Cajon Pass. A similar view would be seen by a motorist on I-15 or by a pedestrian, bicyclist, or user of an off-road recreational vehicle on the Santa Fe Fire Road, which lies parallel to the northbound I-15 on-ramp from U.S. Highway 138. The view looks toward the natural formation of the Mormon Rocks and the historic AT&SF line. A commercial area is in the middleground. The freeway, on-ramp, and vehicles are dominant elements in the foreground.

The vividness of the view is high due to the memorable visual experience of the Mormon Rocks. The intactness and unity are considered average because the commercial buildings and the freeway intrude upon the natural landscape character. The visual quality at KOP-10 is ranked as average.

Existing Condition, KOP-10



Rating

| | |
|-----------------|---------|
| Vividness: | Average |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Figure 12. Key Observation Point 10, Cajon Pass/San Bernardino National Forest

4.2.9. Key Observation Point 11, Cajon Pass/San Bernardino National Forest

Figure 13 represents a person’s view from KOP-11, which is at the trailhead of the Pacific Crest Trail and the entrance to Crowder Canyon, near the Santa Fe and Salt Lake Trail Monument. The view is looking southwest toward I-15 and the San Gabriel Mountains beyond, in the distance. Power lines, the freeway, and a CHP scale facility are in the foreground and middleground.

The vividness is considered average because, while the San Gabriel Mountain views are distinctive, the freeway, buildings, and utilities in the middle- and foreground detract from the view. The built elements also diminish the intactness and unity of the view to low and average, respectively. The overall visual quality at KOP-11 is ranked as average.

Existing Condition, KOP-11



Rating

| | |
|-----------------|---------|
| Vividness: | Average |
| Intactness: | Low |
| Unity: | Average |
| Visual Quality: | Average |

Figure 13. Key Observation Point 11, Cajon Pass/San Bernardino National Forest

4.2.10. Key Observation Point 12, Cajon Pass/San Bernardino National Forest

Figure 14 represents the view, looking west, from KOP-12, which is near a trailhead parking area off Cleghorn Ridge Road. A similar view would be seen by a motorist on Cleghorn Ridge Road or a person at the trailhead. Cleghorn Ridge Road is in the foreground, the I-15 overcrossing of Cleghorn Ridge Road is in the middleground, and the foothills and San Gabriel Mountains extend beyond into the distance.

The vividness is considered average because the transportation elements detract from the memorable experience of the San Gabriel Mountain views. Intactness and unity are considered average because of the built elements that intrude upon the natural landscape character. The overall visual quality at KOP-12 is ranked as average.

Existing Condition, KOP-12



Rating

| | |
|-----------------|---------|
| Vividness: | Average |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Figure 14. Key Observation Point 12, Cajon Pass/San Bernardino National Forest

4.2.11. Key Observation Point 13, Cajon Pass/San Bernardino National Forest

Figure 15 represents the view looking northwest from KOP-13 toward SR 138 and the El Cajon Pass summit of I-15 in the background. A similar view would be seen from a recreational vehicle on nearby gravel roads or by a recreational hiker nearby. The view looks across I-15 in the far distance toward the cultural viewpoint KOP-7 with the dry creek beds in the foreground.

The vividness of the view is average. Although there are views across the pass to the distant mountains, the view is not memorable due to the introduction of transportation elements in the foreground. The intactness and unity are also considered average because the highways intrude upon the natural landscape character. The visual quality at KOP-13 is ranked as average.

Existing Condition, KOP-13



Rating

| | |
|-----------------|---------|
| Vividness: | Average |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Figure 15. Key Observation Point 13, Cajon Pass/San Bernardino National Forest

4.2.12. Key Observation Point 14, Cajon Pass/San Bernardino National Forest

Figure 16 represents the view, looking north, from KOP-14. The view represents a view of a motorist traveling northbound on I-15, with mountainous terrain on each side of I-15. The view also includes distant views of the San Gabriel Mountains and valleys as a motorist continues traveling north. The vividness of the view is high due to the surrounding topography and vegetation; the view is somewhat memorable and a contrast to the urbanized character of Section 3 and the high desert of Section 1. The intactness and unity are considered average because the transportation elements detract from the natural landscape character. The overall visual quality at KOP-14 is ranked as average.

Existing Condition, KOP-14



Rating

| | |
|-----------------|---------|
| Vividness: | High |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Figure 16. Key Observation Point 14, Cajon Pass/San Bernardino National Forest

4.3. Section 3, Greater Los Angeles

Section 3 begins at the I-15/Kenwood Avenue interchange in San Bernardino. It continues south along I-15, then through the existing Metrolink station in Rancho Cucamonga, to Haven Avenue in Rancho Cucamonga. KOP-15 through KOP-17 are in Section 3 and represent sensitive views to and from the Cajon Wash, residential and urban centers in Rancho Cucamonga and distant views of the San Gabriel and San Bernadino Mountains from the Metrolink station in Rancho Cucamonga. The KOPs in Section 3 primarily represent viewer groups such as motorists traveling along I-15, people in residential neighborhoods, patrons at nearby shopping centers, and pedestrians and bicyclists traveling along frontage roads.

4.3.1. Key Observation Point 15, Rancho Cucamonga

Figure 17 represents the view of a pedestrian or motorist from KOP-15. The view is toward the east from the intersection of the southbound on- and off-ramps along Foothill Boulevard in Rancho Cucamonga. The I-15 freeway and southbound on- and off-ramps to Foothill Boulevard are visible on the left side of the photo. There are distant background views of the San Bernadino Mountains at this location, but the primary view is of the I-15 freeway.

The existing view primarily consists of the freeway infrastructure and traffic, with a grassy slope and some trees in the foreground and middleground and the San Bernadino Mountains in the background. The vividness, intactness, and unity of the view are considered average, and the overall visual quality is ranked as average at KOP-15.

Existing Condition, KOP-15



Rating

| | |
|-----------------|---------|
| Vividness: | Average |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Figure 17. Key Observation Point 15, Rancho Cucamonga

4.3.2. Key Observation Point 16, Rancho Cucamonga/Metrolink Station

Figure 18 represents the view of a pedestrian at KOP-16, looking north toward a parking lot and industrial properties in the foreground and the San Gabriel Mountains in the background. The KOP-16 viewshed is from the second level of an office building adjacent to the Rancho Cucamonga Metrolink station parking lot. Ornamental vegetation in the foreground buffers views of the adjacent parking lot and the tall industrial properties in the middleground.

The vividness of the view, with the San Gabriel Mountains, is considered to be high from KOP-16 on the second level of the building. However, a view from the first floor of the building would be average because of the obstructions at ground level. The intactness and unity are average, and the overall visual quality is ranked as average at KOP-16.

Existing Condition, KOP-16



Rating

| | |
|-----------------|---------|
| Vividness: | High |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Figure 18. Key Observation Point 16, Rancho Cucamonga/Metrolink Station

4.3.3. Key Observation Point 17, Rancho Cucamonga/MetroLink Station

Figure 19 represents the view of a pedestrian or motorist looking northeast at KOP-17, which is at the Rancho Cucamonga MetroLink station. The ornamental trees in the foreground somewhat buffer the view of tall industrial buildings to the northeast.

The intactness is considered average; the vividness and unity are low due to lack of cohesion and uniformity. The overall visual quality is ranked as low.

Existing Condition, KOP-1715



Rating

| | |
|-----------------|---------|
| Vividness: | Low |
| Intactness: | Average |
| Unity: | Low |
| Visual Quality: | Low |

Figure 19. Key Observation Point 17, Rancho Cucamonga/MetroLink Station

5. Environmental Consequences and Mitigation

5.1. Build Alternative

5.1.1. Construction Effects

Construction impacts would be similar in all three sections of the Project. Construction of the railway, stations, and related facilities would involve the use of heavy equipment, stockpiling of soils and materials, and other visual signs of construction. Construction of the stations, railway, and ancillary facilities related to the Project would involve site preparation, foundation work, framing, structural construction, and finishing work. The visual impacts of construction would be temporary and would be limited through implementation of the avoidance and minimization measures listed in Section 5.3.1.

Because construction laydown/staging areas would likely utilize previously disturbed land, they would have effects on visual quality in the form of dust, glare, and visual clutter—but impacts would be temporary and would be limited through implementation of minimization measures. Of the potential staging areas identified in the preliminary design, three would negatively affect views from trails or areas frequented by the public:

- Crowder Canyon/Pacific Crest Trail overcrossing in the median of I-15
- Cleghorn Canyon/road overcrossing in the median of I-15
- Rancho Cucamonga near Foothill Boulevard along the north side of I-15

5.1.2. Operation Effects

To illustrate potential long-term visual changes related to the Project, this section presents two images for each KOP. Each pair of images includes a photograph showing an existing view and a computer simulation showing a view after the Project is in place. Each image is accompanied by the visual quality rating (low, average, or high). The narrative describes the visual changes resulting from the Project and indicates if they would constitute a visual impact.

5.1.2.1. Section 1, High Desert

Key Observation Point 1, Victor Valley

Figure 20 shows a view from KOP-1. It represents a motorist's perspective from I-15, looking northeast toward the CEMEX overcrossing and Quarry Road. The landscape character consists of various rolling embankments, with vegetation typical of high desert alluvial fans, in the foreground and middleground.

As illustrated by the photo simulation (bottom image in Figure 20), the Project would add an elevated structure in the median of I-15 that would cross over the existing CEMEX overcrossing and Quarry Road. The proposed structure would consist of a series of vertical piers and the elevated structure approximately 40 feet above the freeway. While the elevated structure would be consistent with the transportation-related corridor, it would create additional areas of shadows for short durations as motorists travel at 70 mph. The existing overhead power

lines, visible under existing conditions (top photo in Figure 20), would be removed and replaced underground; this would enhance the view but not enough to change the visual quality. The high desert landscape and rolling terrain in the middle- and foreground would remain unchanged.

The proposed elevated railway structure would reduce the vividness and intactness of the view to low due to the presence of an overhead structure, which would encroach into the view. The unity would remain unchanged. The overall visual quality of KOP-1 would rank as low.

Existing Condition, KOP-1



Rating

| | |
|-----------------|---------|
| Vividness: | Average |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Visual Simulation, Build Alternative, KOP-1



Rating

| | |
|-----------------|---------|
| Vividness: | Low |
| Intactness: | Low |
| Unity: | Average |
| Visual Quality: | Low |

Figure 20. Key Observation Point 1, Victor Valley

Key Observation Point 2, Victorville

Figure 21 shows a view from KOP-2. It represents a view, looking northeast, from the perspective of a motorist on the I-15 northbound on-ramp crossing over the Mojave River and its floodplain. As illustrated by the photo simulation (bottom image in Figure 21), the Project would moderately interrupt scenic views to the west of the Mojave River and its broad floodplain of unique vegetation. Due to the moderate interruption and blockage of scenic BLM Class II and Class IV views, the vividness would reduce to low. The intactness and unity would remain at average because the railway in the median would be another built, transportation-related element within the existing I-15 corridor. The visual quality would remain ranked as average.

Existing Condition, KOP-2



| Rating | |
|-----------------|---------|
| Vividness: | Average |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Visual Simulation, Build Alternative, KOP-2



| Rating | |
|-----------------|---------|
| Vividness: | Low |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Figure 21. Key Observation Point 2, Victorville

5.1.2.2. Section 2, Cajon Pass

Key Observation Point 3, Hesperia

Figure 22 shows a view from KOP-3 near Hesperia. It represents a motorist's view from southbound I-15, south of Joshua Street, looking southwest toward the existing Joshua Street overcrossing and distant San Bernardino and San Gabriel Mountains.

As illustrated in the visual simulation (bottom image in Figure 22), the Project would add an at-grade platform for the Hesperia station in the I-15 median. Concrete barriers and fencing would separate the station area from the freeway. To access the station, rail passengers would use the existing sidewalks on the Joshua Street bridge to reach the proposed vertical connection at the mid-span of the bridge and then descend to the station platform at grade. The bridge and station would have architectural vertical elements (e.g., elevators, overhead canopies, stairway, and catenary poles) to support passenger circulation and train operation. Sidewalks on the existing bridge would connect passengers to a surface parking lot for rail passengers that would be built on the west side of I-15.

Integration of the proposed built elements into the view would maintain an average ranking for the vividness and intactness of the visual character and a low ranking of unity because the station would be another built, transportation-related element close to the existing overpass structure at Joshua Street. The duration of the view would be short considering the speed at which traveling motorists are passing by. The visual quality rank would remain average for KOP-3 and would not be considered a visual impact.

Existing Condition, KOP-3



Rating

| | |
|-----------------|---------|
| Vividness: | Average |
| Intactness: | Average |
| Unity: | Low |
| Visual Quality: | Average |

Visual Simulation, Build Alternative, KOP-3



Rating

| | |
|-----------------|---------|
| Vividness: | Average |
| Intactness: | Average |
| Unity: | Low |
| Visual Quality: | Average |

Figure 22. Key Observation Point 3, Hesperia

Key Observation Point 4, Cajon Pass/San Bernardino National Forest

Figure 23 represents the view from KOP-4. It shows a view of a motorist traveling northbound on I-15, looking northeast alongside the Old Spanish Trail toward Cajon Summit. In Figure 23, the water tower is visible in the distance on the left side of the freeway. To provide space for the railway in the I-15 median on the west side of the northbound lanes, the Project would cut into the embankments and would add retaining walls, where necessary, as illustrated in the bottom image of Figure 23. The Project would construct a bridge over the railway to provide CHP and emergency access between the northbound and southbound lanes of I-15.

The railway would be another visual element of the transportation network, and the cut and associated retaining walls would affect the rolling terrain in the viewshed, but the effects would not be enough to reduce the vividness or intactness. The proposed overpass structure and associated structural walls to support the CHP access would be additional built, transportation-related elements and would interrupt the visual coherence of the view looking north; they would reduce the unity of the view to low. The visual quality rank would remain average, so the Project would not result in a visual impact at KOP-4.

Existing Condition, KOP-4



Rating

| | |
|-----------------|---------|
| Vividness: | Average |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Visual Simulation, Build Alternative, KOP-4



Rating

| | |
|-----------------|---------|
| Vividness: | Average |
| Intactness: | Average |
| Unity: | Low |
| Visual Quality: | Average |

Figure 23. Key Observation Point 4, Cajon Pass/San Bernardino National Forest

Key Observation Point 5, Cajon Pass/San Bernardino National Forest

Figure 24 represents the view from KOP-5. It shows a view of a motorist traveling northbound on I-15, looking north alongside the Old Spanish Trail toward Cajon Summit. To provide space for the railway in the median of I-15, west of the northbound lanes, the Project would cut into the embankments and would add retaining walls, where necessary. The Project would construct a bridge over the railway to provide CHP and emergency access between the northbound and southbound lanes of I-15, as illustrated in the bottom image of Figure 24.

The railway would be another visual element of the transportation network, and the cut and associated retaining walls would affect the rolling terrain in the viewshed, but the effects would not be sufficient to reduce the vividness or intactness. The proposed overpass structure and associated structural walls to support the CHP access would be additional built transportation-related elements and would interrupt the visual coherence of the view looking north; they would reduce the unity of the view to low. The overall visual quality rank would remain average; therefore, the Project would not result in a visual impact at KOP-5.

Existing Condition, KOP-5**Rating**

| | |
|-----------------|---------|
| Vividness: | Average |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Visual Simulation, Build Alternative, KOP-5**Rating**

| | |
|-----------------|---------|
| Vividness: | Average |
| Intactness: | Average |
| Unity: | Low |
| Visual Quality: | Average |

Figure 24. Key Observation Point 5, Cajon Pass/San Bernardino National Forest

Key Observation Point 6, Cajon Pass/San Bernardino National Forest

Figure 25 represents the view from KOP-6. It shows a view of a motorist traveling northbound on I-15, looking north toward the split of northbound and southbound I-15 as it climbs toward the summit of Cajon Pass. The view is vast of the surrounding San Gabriel and San Bernardino Mountains, and the SCE Boulder Dam–San Bernardino transmission lines are clearly visible in the middleground.

As illustrated in the visual simulation (bottom image in Figure 25), the Project would add several transportation-related elements to the view. The Project would construct a raised access road on the east side of I-15, an elevated railway with retaining walls in the I-15 median,

and a new overpass structure to support CHP and emergency vehicle access between the northbound and southbound lanes of I-15. As a result, the Project would affect and partially block vast views of the mountains and rolling terrain. The effects would reduce the vividness to average due to the contrasting elements to the vast landscape. The intactness would remain average due to the integration of the Project into an existing transportation network. The unity of the view would be reduced to low due to the lack of visual coherence and compositional harmony of the landscape. The visual quality rank would reduce to average, and the Project would result in a visual impact at KOP-6.

Existing Condition, KOP-6



Rating

| | |
|-----------------|---------|
| Vividness: | High |
| Intactness: | Average |
| Unity: | High |
| Visual Quality: | High |

Visual Simulation, Build Alternative, KOP-6



Rating

| | |
|-----------------|---------|
| Vividness: | Average |
| Intactness: | Average |
| Unity: | Low |
| Visual Quality: | Average |

Figure 25. Key Observation Point 6, Cajon Pass/San Bernardino National Forest

Key Observation Point 7, Cajon Pass/San Bernardino National Forest

Figure 26 represents the view from KOP-7 near the summit of Cajon Pass. It shows a typical view of a recreational hiker looking southeast. I-15 northbound and southbound lanes are clearly visible, and the Cajon Valley is in the background. The view represents a cultural viewshed and looks toward the natural formation of the Mormon Rocks and the historic AT&SF line; Coyote's Nose is in the middleground, located east of the northbound freeway. The mountain ranges and variations in topography are the dominant elements in the view beyond the freeway.

As illustrated in the visual simulation (bottom image in Figure 26), the railway would be at grade and in the I-15 median next to the northbound lanes. As shown, the Project would have a minimal effect on the visual integrity of the view. Views toward the mountains and Coyote's Nose would be maintained. The vividness would remain high due to the wide range of views. The intactness and unity would remain as average because, although the Project would add a new transportation element, it would be integrated with the existing freeway and would appear as another element in the transportation network. The visual quality rank of average would not change; therefore, the Project would not result in a visual impact at KOP-7.

Existing Condition, KOP-7



Rating

| | |
|-----------------|---------|
| Vividness: | High |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Visual Simulation, Build Alternative, KOP-7



Rating

| | |
|-----------------|---------|
| Vividness: | High |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Figure 26. Key Observation Point 7, Cajon Pass/San Bernardino National Forest

Key Observation Point 8, Cajon Pass/San Bernardino National Forest

Figure 27 represents a motorist’s view and cultural viewshed from KOP-8. The view is from SR 138, west of Cajon Junction, looking east across Cajon Junction toward Coyote’s Nose. The dominant elements in this view are the natural formation of Coyote’s Nose in the middleground; mountain ranges in the background; AT&SF line, with I-15 behind and above it, in the middleground; and SR 138 in the foreground. The view captures some commercial development and signage at the base of Coyote’s Nose, near the northbound I-15 lanes.

As illustrated in the visual simulation (bottom image in Figure 27), the proposed railway would be at grade in the I-15 median and integrated next to the northbound lanes. The AT&SF line and Coyote's Nose would remain dominant in the middleground, SR 138 would remain dominant in the foreground, and the Project would have a minimal effect on the visual integrity of the view. Views of the mountains and Coyote's Nose would be maintained. The vividness ranking would remain high. The intactness and unity would remain average because, although the Project would add a new transportation element, it would be integrated with the existing freeway and would appear as another element in the transportation network. The visual quality rank of average would not change; therefore, the Project would not result in a visual impact at KOP-8.

Existing Condition, KOP-8



Rating

Vividness: High
Intactness: Average
Unity: Average
Visual Quality: Average

Visual Simulation, Build Alternative, KOP-8



Rating

Vividness: High
Intactness: Average
Unity: Average
Visual Quality: Average

Figure 27. Key Observation Point 8, Cajon Pass/San Bernardino National Forest

Key Observation Point 9, Cajon Pass/San Bernardino National Forest

Figure 28 represents a motorist's view looking southwest toward Coyote's Nose from KOP-9 along SR 138 on the south bound shoulder. The view is a cultural viewshed and looks toward and beyond the natural formation of Coyote's Nose and high desert vegetation to the west (in the right half of the photo) and the San Gabriel Mountains in the background. The middleground includes a distant view of the historic AT&SF line, along with the interchange of SR 138 and I-15 and ancillary temporary gravel parking areas.

As illustrated in the visual simulation (bottom image in Figure 28), the proposed railway would not be noticeable in the view, primarily because of the presence of other existing transportation elements. The proposed railway would be at grade in the I-15 median, at the same elevation as the I-15 roadway. The natural formation of Coyote's Nose would remain dominant in the foreground, and views of the mountains in the background would be maintained. The Project would have a minimal effect on the visual integrity of the view. The vividness would remain ranked as high. The intactness and unity would remain ranked as average because, although the Project would add a new transportation element, it would be surrounded by the existing freeway. The visual quality rank of average would not change; therefore, the Project would not result in a visual impact at KOP-9.

Existing Condition, KOP-9**Rating**

| | |
|-----------------|---------|
| Vividness: | High |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Visual Simulation, Build Alternative, KOP-9**Rating**

| | |
|-----------------|---------|
| Vividness: | High |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Figure 28. Key Observation Point 9, Cajon Pass/San Bernardino National Forest

Key Observation Point 10, Cajon Pass/San Bernardino National Forest

Figure 29 represents the view, looking northwest toward the Mormon Rocks, from KOP-10 near the summit of Cajon Pass. A similar view would be seen by a motorist on I-15 or by a pedestrian, bicyclist, or user of an off-road recreational vehicle on the Santa Fe Fire Road, which is parallel to the northbound I-15 on-ramp from SR 138.

As illustrated in the visual simulation (bottom image in Figure 29), the railway would be at grade in the I-15 median, at the same elevation as the I-15 roadway. The freeway elements would remain dominant in the foreground, and the Project would have a minimal effect on the visual integrity of the view. Views toward the mountains and the Mormon Rocks would be maintained. The vividness would remain as average. The intactness and unity would also remain as average because although the Project would add a new transportation element, it would be surrounded by the existing freeway, which would remain dominant in the foreground. The visual quality rank of average would not change; therefore, the Project would not result in a visual impact at KOP-10.

Existing Condition, KOP-10



Rating

| | |
|-----------------|---------|
| Vividness: | Average |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Visual Simulation, Build Alternative, KOP-10



Rating

| | |
|-----------------|---------|
| Vividness: | Average |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Figure 29. Key Observation Point 10, Cajon Pass/San Bernardino National Forest

Key Observation Point 11, Cajon Pass/San Bernardino National Forest

Figure 30 represents a person's view from KOP-11, which is at the trailhead of the Pacific Crest Trail and the entrance to Crowder Canyon. The view is looking southwest toward I-15 and the San Gabriel Mountains beyond, in the distance. At KOP-11, the proposed railway would be visible in the I-15 median, as illustrated in the bottom image in Figure 30. The railway would be at grade, surrounded by and at the same elevation as I-15.

As at KOP-11, the Project would add another transportation element to the view of a heavily developed transportation corridor, and the Project would have little effect on the view. The vividness of the view would remain average, the intactness would remain low, and the unity would remain average. The visual quality rank of average would not change; therefore, the Project would not result in a visual impact at KOP-11.

Existing Condition, KOP-11



| Rating | |
|-----------------|---------|
| Vividness: | Average |
| Intactness: | Low |
| Unity: | Average |
| Visual Quality: | Average |

Visual Simulation, Build Alternative, KOP-11



| Rating | |
|-----------------|---------|
| Vividness: | Average |
| Intactness: | Low |
| Unity: | Average |
| Visual Quality: | Average |

Figure 30. Key Observation Point 11, Cajon Pass/San Bernardino National Forest

Key Observation Point 12, Cajon Pass/San Bernardino National Forest

Figure 31 represents the view, looking west, from KOP-12, which is near a trailhead parking area off Cleghorn Ridge Road. A similar view would be seen by a motorist on Cleghorn Ridge Road or a person at the trailhead. At KOP-12, the proposed railway would be visible in the I-15 median, as illustrated in the visual simulation (bottom image in Figure 31). The railway would be at grade, surrounded by and at the same elevation as I-15.

The railway (including associated elements such as the catenary poles and wires) would be noticeable because it would contrast against the background mountain views. However, because the railway would be in the midst of an already developed transportation corridor, the Project would have little effect on the view. The Project would slightly reduce the intactness of the view from KOP-12; the rank would change from average to low. The vividness of the view would remain average, and the unity would remain average. The overall visual quality would remain average, indicating the Project would not result in a visual impact at KOP-12.

Existing Condition, KOP-12



Rating

| | |
|-----------------|---------|
| Vividness: | Average |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Visual Simulation, Build Alternative, KOP-12



Rating

| | |
|-----------------|---------|
| Vividness: | Average |
| Intactness: | Low |
| Unity: | Average |
| Visual Quality: | Average |

Figure 31. Key Observation Point 12, Cajon Pass/San Bernardino National Forest

Key Observation Point 13, Cajon Pass/San Bernardino National Forest

Figure 32 represents the view looking northwest from KOP-13 toward SR 138 and the El Cajon Pass summit of I-15 in the background. A similar view would be seen from a recreational vehicle on nearby gravel roads or by a recreational hiker nearby. The view looks across I-15 in the distance toward the cultural viewpoint KOP-7 with the dry creek beds in the foreground.

As illustrated in the visual simulation (bottom image in Figure 32), the highway elements would remain dominant in the foreground, and the Project would have a minimal effect on the visual integrity of the view. Views toward the mountains would be maintained. The vividness would remain ranked as average. The intactness and unity would also remain ranked as average because, although the Project would add a new transportation element in the distant background, the cultural viewshed would remain unchanged. The visual quality rank of average would not change; therefore, the Project would not result in a visual impact at KOP-13.

Existing Condition, KOP-13**Rating**

| | |
|-----------------|---------|
| Vividness: | Average |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Visual Simulation, Build Alternative, KOP-13**Rating**

| | |
|-----------------|---------|
| Vividness: | Average |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Figure 32. Key Observation Point 13, Cajon Pass/San Bernardino National Forest

Key Observation Point 14, Cajon Pass/San Bernardino National Forest

Figure 33 represents the view looking north from KOP-14. The view represents a view of a motorist traveling northbound on I-15. Mountainous terrain is on each side of I-15. The San Gabriel Mountains and valleys come into view as a motorist continues traveling north.

The Project would construct a bridge and associated ramps to provide CHP and emergency vehicle access. The bridge and associated ramps would be additional transportation-related

elements within the I-15 corridor. The bridge would interrupt the continuous view of the topography and mountain ranges in the middleground and background, as illustrated in the bottom image in Figure 33 and, as a result, would lower the memorable and harmonious visual experience of the vividness to average. The intactness and unity would remain average because the crossing would be another built, transportation-related element within the existing transportation corridor. The visual quality would remain average at KOP-14.

Existing Condition, KOP-14



Rating

| | |
|-----------------|---------|
| Vividness: | High |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Visual Simulation, Build Alternative, KOP-14



Rating

| | |
|-----------------|---------|
| Vividness: | Average |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Figure 33. Key Observation Point 14, Cajon Pass, San Bernardino National Forest

5.1.2.3. Section 3, Greater Los Angeles

Key Observation Point 15, Rancho Cucamonga

Figure 34 represents the view of a pedestrian or motorist from KOP-15. The view is toward the east from the intersection of the southbound on- and off-ramps along Foothill Boulevard in Rancho Cucamonga. As illustrated in the visual simulation (bottom image in Figure 34, the Project would add an elevated structure on columns (viaduct) that would parallel the west side of the I-15 southbound off-ramp to Foothill Boulevard, then it would cross over Foothill Boulevard. The rail alignment would be within the I-15 right-of-way but next to the property line of private commercial properties.

The viaduct would be clearly visible to shoppers and business employees as a new, elevated transportation element, but it would still be considered part of the transportation corridor. The vividness and intactness of the view would remain average, but, due to the proximity of the alignment to sensitive viewers, the unity of the view would be reduced to low. As a result, the visual quality would remain average and the Project would not result in a visual impact at KOP-15.

Existing Condition, KOP-15



Rating

| | |
|-----------------|---------|
| Vividness: | Average |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Visual Simulation, Build Alternative, KOP-15



Rating

| | |
|-----------------|---------|
| Vividness: | Average |
| Intactness: | Average |
| Unity: | Low |
| Visual Quality: | Average |

Figure 34. Key Observation Point 15, Rancho Cucamonga

Key Observation Point 16, Rancho Cucamonga/Metrolink Station

Figure 35 represents the view of a pedestrian at KOP-16, looking north toward a parking lot and industrial properties in the foreground and the San Gabriel Mountains in the background. The KOP-16 viewshed is from the second level of an office building adjacent to the Rancho Cucamonga Metrolink station parking lot. As illustrated in the visual simulation (bottom image in Figure 35, the proposed railway would be built on a large retaining wall. The proposed retaining wall would be approximately 0.5 mile long and up to 34 feet high.

The retaining wall supporting the railway, as well as the poles of the catenary system, would partially obstruct the view of the mountains but would be an element that is similar in scale to that of the adjacent industrial buildings. Although not depicted in the visual simulation in Figure 35, the Project would be a visual barrier for pedestrians and motorists in the parking lots and for office workers on the lower level of the office building, but the view would be similar to that of the nearby industrial buildings. The Project would reduce the vividness of the view to average due to the foreground view of buildings and parking lots. The intactness and unity would remain average. The visual quality would remain average, and the Project would not result in a visual impact at KOP-16.

Existing Condition, KOP-16



Rating

| | |
|-----------------|---------|
| Vividness: | High |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Visual Simulation, Build Alternative, KOP-16



Rating

| | |
|-----------------|---------|
| Vividness: | Average |
| Intactness: | Average |
| Unity: | Average |
| Visual Quality: | Average |

Figure 35. Key Observation Point 16, Rancho Cucamonga/Metrolink Station

Key Observation Point 17, Rancho Cucamonga/Metrolink Station

Figure 36 represents the view of a pedestrian or motorist looking northeast at KOP-17, which is at the Rancho Cucamonga Metrolink station. As indicated by the visual simulation (bottom image in Figure 36) and described in the previous section, the Project would add an elevated,

retained structure for the railway and station platform, with the catenary system extending above.

The solidity and scale of the elevated railway structure would create a visual sense of enclosure on the parking lot at the Metrolink station. The elevated railway structure would be a visual barrier for pedestrians, railway patrons, and motorists in the parking lot but its scale would be similar to that of the adjacent industrial buildings. The vividness of the view would remain low. The intactness would be reduced to low, and the unity would increase to average because of the coherent and uniform nature of the elevated railway structure. The overall visual quality would remain low, and the Project would not have a visual impact at KOP-17.

Existing Condition, KOP-17



Rating

| | |
|-----------------|---------|
| Vividness: | Low |
| Intactness: | Average |
| Unity: | Low |
| Visual Quality: | Low |

Visual Simulation, Build Alternative, KOP-17



Rating

| | |
|-----------------|---------|
| Vividness: | Low |
| Intactness: | Low |
| Unity: | Average |
| Visual Quality: | Low |

Figure 36. Key Observation Point 17, Rancho Cucamonga/Metrolink Station

Summary of Operation Effects

Railway

The proposed railway would have minimal visual conflicts with views of the surrounding desert, mountain, and urban landscapes in various areas, as indicated by the previous descriptions of impacts at each KOP. The most apparent conflicts would occur where the railway would be elevated, such as on a bridge, and outside of urbanized areas where it would intrude on distinctive views of the desert environment and distant mountains.

The railway alignment would be in the median of I-15, and most of it would be at grade. It would be flanked on both sides by freeway lanes and vehicular traffic. In that setting, the railway would have relatively low impacts on visual quality because, to a viewer, it would almost appear to be part of the freeway transportation system—in both urban and non-urban settings. Although the Project would introduce another transportation element to views, the railway would visually blend into the larger transportation element that is the freeway.

In urbanized areas, the railway alignment and associated structures would be additional built transportation elements within the character of the urban centers, where views are often blocked or buffered by buildings, bridges, billboard signs, and other structures.

Motorists traveling along I-15 and recreational users at key locations would be the primary viewers of the railway in non-urbanized areas of the alignment. Near elevated segments of the railway, project elements such as barriers, fences, bridges, piers, catenary poles and wires, and passing trains would detract from the vividness, intactness, and unity of views from the freeway toward the undeveloped desert landscape with low vegetation, rolling hills, and distant views of the mountains—but only for a short duration because motorists are traveling at about 70 mph. Adjacent to portions of the alignment through the desert, lands are classified by BLM as Class II and Class IV lands, for which the intent is to retain the existing visual character. These lands primarily occur away from the proposed alignment and are farther north, outside the study area for this visual assessment but within the viewsheds included in this study. Project elements would contrast in form but would blend in color and texture with the natural desert environment and landforms.

The railway would add built elements to viewsheds in the study area, changing the views and, in some areas where the railway would be elevated, decreasing visual quality. The Project will implement avoidance and minimization measures, described in Section 5.3.2.1, to avoid and minimize the railway's impacts on visual quality. Overall, the Project would add new visual elements to the landscape that would generally be consistent with the existing transportation corridor and would not substantially alter existing scenic views of the natural environment. The Project would have a negative impact on visual quality at KOP-6. Potential impacts at KOP-1 through KOP-17 are summarized in Table 1.

Table 1. Summary of Visual Quality Effects at Key Observation Points

| Key Observation Point | Condition | Visual Quality Rank | | | |
|-------------------------------|-------------------|---------------------|------------|---------|---------|
| | | Vividness | Intactness | Unity | Overall |
| Section 1 | | | | | |
| KOP-1 | Existing | Average | Average | Average | Average |
| Victor Valley | Build Alternative | Average | Low | Average | Average |
| KOP-2 | Existing | Average | Average | Average | Average |
| Victorville | Build Alternative | Average | Average | Average | Average |
| Section 2 | | | | | |
| KOP-3 | Existing | Average | Average | Low | Average |
| Hesperia | Build Alternative | Average | Average | Low | Average |
| KOP-4 | Existing | Average | Average | Average | Average |
| Cajon Pass/San Bernardino NF | Build Alternative | Average | Average | Low | Average |
| KOP-5 | Existing | Average | Average | Average | Average |
| Cajon Pass/ San Bernardino NF | Build Alternative | Average | Average | Low | Average |
| KOP-6 | Existing | High | Average | High | High |
| Cajon Pass/ San Bernardino NF | Build Alternative | Average | Average | Average | Average |
| KOP-7 | Existing | High | Average | Average | Average |
| Cajon Pass/ San Bernardino NF | Build Alternative | High | Average | Average | Average |
| KOP-8 | Existing | High | Average | Average | Average |
| Cajon Pass/ San Bernardino NF | Build Alternative | High | Average | Average | Average |
| KOP-9 | Existing | High | Average | Average | Average |
| Cajon Pass/ San Bernardino NF | Build Alternative | High | Average | Average | Average |
| KOP-10 | Existing | Average | Average | Average | Average |
| Cajon Pass/ San Bernardino NF | Build Alternative | Average | Average | Average | Average |
| KOP-11 | Existing | Average | Low | Average | Average |
| Cajon Pass/ San Bernardino NF | Build Alternative | Average | Low | Average | Average |
| KOP-12 | Existing | Average | Average | Average | Average |
| Cajon Pass/ San Bernardino NF | Build Alternative | Average | Low | Average | Average |
| KOP-13 | Existing | Average | Average | Average | Average |
| Cajon Pass/ San Bernardino NF | Build Alternative | Average | Average | Average | Average |
| KOP-14 | Existing | High | Average | Average | Average |
| Cajon Pass/ San Bernardino NF | Build Alternative | Average | Average | Average | Average |

| Key Observation Point | Condition | Visual Quality Rank | | | |
|----------------------------|-------------------|---------------------|------------|---------|---------|
| | | Vividness | Intactness | Unity | Overall |
| Section 3 | | | | | |
| KOP-15 Rancho Cucamonga | Existing | Average | Average | Average | Average |
| | Build Alternative | Average | Average | Low | Average |
| KOP-16 Rancho Cucamonga | Existing | High | Average | Average | Average |
| | Build Alternative | Average | Average | Average | Average |
| KOP-17 Rancho Cucamonga | Existing | Low | Average | Low | Low |
| | Build Alternative | Low | Low | Average | Low |

Notes:

NF = National Forest

Bold text indicates negative impact.

Hesperia Station

Motorists traveling on I-15 also would be the primary viewers of the Hesperia station and associated development. Although the station platform would be in the median of I-15 and at the same grade as the freeway, retaining walls, barriers, vertical structures for passengers to access the station platform (e.g., elevator towers, stairways, and overhead canopies) would be visible components, as described in Section 5.1.2 for KOP-3. The vertical passenger circulation elements and existing bridge would partially obstruct views to distant mountains and the desert environment but only for a short duration as traveling motorists pass by at freeway speeds, limiting the severity of the impacts for viewers on I-15. The Project includes measures, described in Section 5.3.2.2, that would minimize visual impacts of the station.

Rancho Cucamonga Station

As described in Section 5.1.2, the elevated Rancho Cucamonga station would detract from partial views from nearby office buildings (such as at KOP-16) of the distant San Gabriel Mountains. The station also would minimally affect views from ground-level viewing locations, such as the Metrolink parking lot (KOP-17). The elevated railway structure would create a visual sense of enclosure. Visual impacts are summarized in Table 1. The Project includes measures, described in Section 5.3.2.3, to avoid and minimize visual impacts of the station.

Ancillary Facilities

Ancillary facilities associated with the Project, such as power substations, would be generally consistent in visual character with the infrastructure normally seen along major highways such as I-15.

5.1.3. Cumulative Effects

Overall, the Project would add new visual elements to the landscape. With implementation of the avoidance and minimization measures included in the Project, the new visual elements would generally be consistent with the existing transportation corridor and would not substantially alter existing scenic views of the natural environment.

5.2. No Build Alternative

The No Build Alternative would not result in temporary impacts on visual quality because no construction would occur. In the long term, views of heavy traffic on parts of the freeway would be longer in duration because traffic congestion is expected to worsen without implementation of the Project. Longer periods of congestion would affect views by travelers on the freeway as well as those of people viewing the freeway.

5.3. Avoidance, Minimization, and Mitigation Measures

5.3.1. Temporary Construction

Construction management will be the primary measure through industry standard practices to maintain an orderly sequence of construction and to properly contain, stockpile, and store materials, and to dispose of litter and debris to prevent dispersal onto adjacent properties, local streets, and highways.

It is anticipated that construction crews would work at night. Any night construction lighting will be directed toward the work zone to minimize light spillover onto adjacent properties, to reduce glare for freeway motorists, and to prevent visible lighting overflow into the natural dark sky of the desert at night. Where feasible, construction lighting will be screened from viewers with fencing, barriers, glare shields, and landscaping.

Measures will be implemented to control dust at construction areas, including staging areas and temporary access routes.

Visual screening, such as fences, will be erected along construction and staging areas as appropriate.

Landscaping and native vegetation that is cleared for temporary construction areas (including staging and access) will be replaced. Disturbed areas within Caltrans right-of-way will be regraded to soften their contours and will be replanted as directed by Caltrans and within six months of the completion of construction.

5.3.2. Operation

5.3.2.1. Railway, Hesperia Station, Rancho Cucamonga Station, and Ancillary Facilities

Rail features, including bridge pillars/columns, raised tracks, trains, catenary structures, crash barriers, retaining walls, abutments, fencing, and embankments, will be designed to blend with or represent the surrounding desert or urban environment. Features will be created or painted in muted desert colors. Bright colors and highly reflective materials will be avoided, as feasible. Project elements defined in the design process will include visual elements that contribute to a sense of place and a memorable experience for motorists, pedestrians, and rail passengers.

Concrete will be embossed with patterns, where appropriate, that are indicative of the surrounding environment and that create a visual link between the railway features and their surroundings.

Visual screening will be placed on the top of the crash barriers along the railway to limit glare to motorists from the trains and train lights. Analysis during the project design process will determine specific details for the screening and will determine if screening may not be needed in specific areas.

5.3.2.2. Hesperia Station

The Hesperia station and associated elements will be developed with architecture that complements the surrounding landscape character with flowing lines, form, and muted colors. The surface parking lot for the station will be surrounded with native landscaping that softens its appearance and helps it blend into its surroundings. The landscaping will include drought-resistant desert plants, rock, and stone. Pedestrian elements such as pathways, structures, and signage will be developed to pedestrian scale and will use patterns, colors, and symbols that represent and complement the desert landscape. Lighting will be designed to provide an adequate sense of safety for the station users, but consideration will also be given to minimize glare, obstruction of views, and support dark sky regulations through glare-screening measures, downward-cast lighting, motion sensors, and plantings that will assist with glare reduction.

5.3.2.3. Rancho Cucamonga Station

The Rancho Cucamonga station and associated elements will be developed with architecture that complements the surrounding urban landscape character with flowing lines, form, and muted colors. The station and surface parking lot will be landscaped with ornamental and native vegetation to soften the appearance of structures and hard surfaces. The landscaping will include drought-tolerant trees, shrubs, and groundcovers, as well as rock and stone. Pedestrian elements such as pathways, structures, and signage will be developed to pedestrian scale and will incorporate patterns, colors, and symbols that represent and complement the surrounding landscape. As at the Hesperia station, lighting for the Rancho Cucamonga station will be designed to provide an adequate sense of safety for station users, and to minimize glare, obstruction of views, and support dark sky regulations.

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