

Brightline West Victor Valley, CA to Las Vegas, NV High-Speed Rail Project Reevaluation

1.0 Introduction

The Brightline West Victor Valley, CA to Las Vegas, NV High-Speed Rail Project (Project) consists of the construction and operation of a fully grade-separated, dedicated, passenger-only high-speed rail system along an approximately 170-mile corridor connecting Victor Valley, California to Las Vegas, Nevada.¹

In accordance with the National Environmental Policy Act (NEPA), its implementing regulations, and the Federal Railroad Administration (FRA) Procedures for Considering Impacts to the Environment (Environmental Procedures), FRA began the environmental review for the Project in 2006 with the publication of a Notice of Intent to initiate an Environmental Impact Statement (EIS). The Project was originally evaluated in the following documents (collectively referenced as the DesertXpress EIS):

- March 2009 *Draft Environmental Impact Statement (EIS) and 4(f) Evaluation for the proposed DesertXpress High-Speed Passenger Train* (DesertXpress DEIS)
- April 2010 *Supplemental Draft Environmental Impact Statement and 4(f) Evaluation for the proposed DesertXpress High-Speed Passenger Train* (DesertXpress SEIS)
- March 2011 *Final Environmental Impact Statement and Final Section 4(f) Evaluation for the Proposed DesertXpress High-Speed Passenger Train Victorville, California to Las Vegas, Nevada* (DesertXpress FEIS)

FRA was the Lead Federal Agency for the environmental review of the Project. The Federal Highway Administration (FHWA), Surface Transportation Board (STB), Bureau of Land Management (BLM), and the National Parks Service (NPS) were Cooperating Agencies. On July 8, 2011, FRA issued the Record of Decision (ROD) for the Project (DesertXpress ROD). The California and Nevada Divisions of BLM issued a ROD for the Project on October 28, 2011, and the California and Nevada Divisions of FHWA also signed a ROD for the Project on November 18, 2011.

In January 2019, DesertXpress Enterprises, LLC submitted Project modifications, including a refined alignment between Apple Valley and Las Vegas (with a greater proportion within the Interstate 15 [I-15] freeway median), modified station sites in Apple Valley² and the Las Vegas area, and other changes to ancillary facilities. Based on the nature of the Project modifications, FRA determined that a reevaluation was appropriate.

A reevaluation is not a NEPA document as defined in the Council on Environmental Quality (CEQ) regulations and is not required to undergo public review. Reevaluations are instead used to document an agency's decision whether a supplemental EIS is required.

In February 2019, FRA initiated a Reevaluation of the DesertXpress FEIS and DesertXpress ROD. FRA in cooperation with BLM, STB, FHWA, and the US Army Corps of Engineers (USACE), with the added participation of the California Department of Transportation (Caltrans) and the Nevada Department of

¹ The Brightline West Project was initially proposed by DesertXpress Enterprises, LLC, and was previously called the DesertXpress Project, and then later as the XpressWest Project. DesertXpress Enterprises, LLC, which is the Project Sponsor, also previously did business as XpressWest.

² Although the modified Project would relocate the Victor Valley Passenger Station platforms (the modified Dale Evans Station) to within the Town of Apple Valley, it would serve the purpose of the original Victorville Passenger Stations considered in the DesertXpress EIS.

Transportation (NDOT), analyzed whether changes in the environmental setting due to the passage of time or the Project modifications would result in new significant environmental impacts. Concurrently with the preparation of the Reevaluation, FRA informally consulted with the United State Fish and Wildlife Service (USFWS) pursuant to Section 7 of the Endangered Species Act. Additionally, FRA has worked with the following Consulting Parties in accordance with Section 106 of the National Historic Preservation Act (Section 106)³:

- Advisory Council on Historic Preservation (ACHP)
- California and Nevada State Historic Preservation Officers
- Federally recognized Native American tribes with an interest in the Project area
- Federal agencies (BLM, STB, FHWA, and USACE, Federal Aviation Administration, NPS)
- Interested parties (Clark County Department of Aviation, Old Spanish Trail Association)
- Nevada Department of Transportation (NDOT)
- California Department of Transportation (Caltrans)

In September 2020, FRA determined the Project modifications would result in similar impacts to those evaluated in the DesertXpress FEIS, and concluded the Project modifications would reduce the overall impacts from the proposed action. Based on the analysis and findings, FRA found that the Project modifications do not constitute changes in the proposed action that would result in significant environmental impacts that were not evaluated in the DesertXpress FEIS.⁴

In 2022, DesertXpress Enterprises, LLC proposed additional Project modifications (described below in Section 2.0). FRA determined it was appropriate to conduct a second Reevaluation to consider the potential impacts of the additional Project modifications, and initiated this Reevaluation in February 2022. Based on Project modifications, anticipated permits and licenses needed for construction and operation of the Project (identified in Table 1 below), FRA invited the participation of the Cooperating Agencies and other agencies previously involved in the NEPA process and continue to have a permit or authorization to participate in the reevaluation process. These agencies include:

- FHWA – California and Nevada Divisions
- BLM – Barstow, Needles, and Las Vegas Field Offices
- STB
- US Army Corps of Engineers (USACE) – Los Angeles District
- USFWS

Specific roles and responsibilities of each Federal agency, including permitting agencies, are further described below.

Table 1: Federal Permits or Approvals

Agency	Permit or Approval
Federal Railroad Administration	Regulations related to high-speed train operation and safety
Bureau of Land Management	Right-of-Way (ROW)

³ The National Park Service (NPS) is no longer a consulting party under Section 106 with the removal of Segment 4A which would have traversed a portion of the Mojave National Preserve. The current project design and footprint avoids all NPS lands.

⁴ The September 2020 Reevaluation document and attachments are available at: <https://railroads.dot.gov/environment/environmental-reviews/desertxpress-xpresswest-las-vegas-victorville>.

Agency	Permit or Approval
Federal Highway Administration	<ul style="list-style-type: none"> • Concurrence for Highway ROW Occupancy and/or Disposal • Approving Access Justification Report or Access Modification Report • Concurrence on Project Design Elements Related to Highway Operations
Surface Transportation Board	Authority to Construct and Operate Railroad
U.S. Army Corps of Engineers	<ul style="list-style-type: none"> • Section 404 Permit (waters of the United States) • Section 401 Certification
U.S. Fish and Wildlife Service	Section 7 Biological Opinion
Federal Aviation Administration	14 Code of Federal Regulations Part 77 and Part 157*

* Although not a Federal action, this regulation requires the Federal Aviation Administration to opine on the Project's impact on the safe and efficient use of navigable airspace.

FRA held Cooperating Agency meetings to review the Project modifications as well as solicit input on the NEPA reevaluation process and any information pertinent to Cooperating Agencies' areas of jurisdiction. NDOT, Caltrans, and Federal Aviation Administration have not been designated as Cooperating Agencies, but these agencies participate in the Cooperating Agency meetings because project modifications place the rail alignment within the NDOT and Caltrans rights-of-way (ROW).

Based on the findings of this Reevaluation, FRA determines the Project modifications would not result in substantial changes in the evaluation of impacts described in the DesertXpress EIS. Therefore, a supplemental EIS is not required for the Project modifications.

This Reevaluation summarizes modifications to Project scope, design, affected environment, impacts, mitigation, and other applicable requirements since publication of the 2011 DesertXpress EIS, DesertXpress ROD, and September 2020 Reevaluation, and assesses whether the environmental impacts or mitigation are different from those previously analyzed in the DesertXpress EIS. This document relies on the following Attachments, listed below and incorporated by reference:

- Attachment A: Summary of Project Modifications
- Attachment B: USFWS Concurrence Letter, September 1, 2023
- Attachment C: Biological Resources Technical Report
- Attachment D: Mitigation Measure Summary

2.0 Project Modifications Since the September 2020 Reevaluation

Since 2020, the project sponsor has proposed modifications to the Project, developed through the final design phase. These modifications are described in Table 2-1 below.

Table 2-1 Project Modifications (Since the September 2020 Reevaluation)

Project Feature	Description of Modification(s)
<p>Alignment</p> <p>Segment 1 Alignment (Apple Valley to Lenwood)</p>	<p>The Project modifications involve relocating the rail alignment between the Victor Valley Station and Sidewinder Road from east side of the I-15 freeway to the median. As such, the entirety of the Segment 1 rail alignment is now within the I-15 freeway median, which would result in reduced impacts and increase the efficiency of train operations. This design change is also favorable with Caltrans and FHWA as it would improve constructability of potential future I-15 freeway improvements in either the northbound or southbound directions.</p> <p>Additionally, the Segment 1 rail alignment would be extended less than one mile south of the Victor Valley Station to access a maintenance of way track that will be constructed to move equipment from the median rail mainline to the maintenance of way facility. Construction of a median-running rail alignment in this area, south of the Dale Evans Parkway intersection, would require realignment of the existing I-15 northbound travel lanes approximately 50 feet east, and reconstruction of the Dale Evans Parkway interchange including the overpass.⁵ This is discussed further under the Victor Valley Station description below. Additionally, the I-15 northbound travel lanes would be elevated approximately 25 feet south of the interchange to allow the maintenance of way track to pass from the median to the maintenance of way facility. All roadway work would occur within existing Caltrans/NDOT ROW.</p>
<p>Segment 5 Alignment (Primm to Sloan Road)</p>	<p>Project modifications would relocate the rail alignment, between Primm and north of Goodsprings Road near Jean, from the east side of the I-15 freeway to the freeway median. As such, the entirety of the Segment 5 rail alignment is now located within the I-15 freeway median, which would result in reduced impacts, increase the safety and efficiency of train operations, and improve constructability for future I-15 widening in this portion of the alignment.</p> <p>Additionally, the previously considered Braid Structures near Primm and the Union Pacific Railroad (UPRR) crossing are no longer needed and have been removed.</p>

⁵ This Reevaluation has assumed full reconstruction and replacement of the overpass. Caltrans will determine the necessary modifications to the I-15/Dale Evans interchange which may not include full reconstruction and replacement of the overpass.

Project Feature	Description of Modification(s)
Stations	
<p>Victor Valley Station (previously referred to as Dale Evans Station)</p>	<p>The Project design evaluated in September 2020 considered collocating an operations, maintenance, and storage facility (OMSF) with the Victor Valley Station, with a permanent footprint of approximately 300 acres. As discussed below, the current Project modifications include a relocation of the Vehicle Maintenance Facility (VMF) to a site on the west side of I-15 in Sloan.</p> <p>The Victor Valley Station permanent footprint would remain unchanged. As noted above, under Segment 1, the Project Modifications include relocating the rail alignment into the median of the I-15 freeway. To accommodate this new rail alignment, the Victor Valley Station layout has been revised to include the passenger boarding and alighting platforms in the median of the I-15 freeway. In order to provide the necessary footprint and access for these platforms, the existing I-15 northbound lanes would be raised and moved east within the Caltrans ROW south of the Dale Evans Parkway interchange. Passengers would access station platforms using a walkway underneath the relocated I-15 freeway northbound lanes.</p>
Mainline Ancillary Features	
<p>Highway Ramp Realignments/Modifications</p>	<p>The Project design evaluated in September 2020 included realignment of portions of approximately 17 existing freeway on and off- ramps to accommodate the rail line within the I-15 freeway ROW. The current Project modifications include extending these on and off ramp realignments and ramp modifications, and changing the location where these ramp realignment/reconstructions transition to the existing roadway/pavement. There are locations where these proposed freeway ramp modifications occur (from south to north):</p> <ul style="list-style-type: none"> • The I-15 southbound ramps at Dale Evans Parkway • The I-15 northbound ramps at Main Street in Barstow • The I-15 northbound ramps and southbound ramps at East Primm Boulevard • The I-15 southbound ramps at Goodsprings Road • The I-15 southbound ramps at Sloan Road <p>These modifications would be located primarily on previously evaluated Project footprint within existing Caltrans/NDOT, and local ROW along the I-15 freeway. These modifications are the result of coordination with Caltrans and NDOT on final design details, in order to update the modified median-running alignment to adhere to current safety design standards.</p>
<p>California Highway Patrol (CHP) Emergency Crossovers</p>	<p>The Project design evaluated in September 2020 included eight emergency crossovers along the alignment in California. The current Project modifications include two new emergency crossovers at Zzyzx Road and Halloran Springs. Additionally, five previously evaluated emergency crossovers in Segment 3 would be relocated. These are located near Coyote Lake Road, Basin Road, Baker, and both north and south of Halloran Springs. Emergency crossovers would be located mainly on previously evaluated Project footprint within the existing Caltrans ROW.</p> <p>In total, the modified Project would include 10 emergency crossovers in California, located in Segment 3 between Yermo and Mountain Pass, and one emergency crossover in Nevada approximately 1.5-miles south of Sloan.</p>

Project Feature	Description of Modification(s)
Roadwork	<p>The Project design evaluated in September 2020 included roadwork at local interchanges and along the I-15 freeway at various locations. The current Project modifications include:</p> <ul style="list-style-type: none"> • Realigning the I-15 freeway northbound lane approximately 50 feet east and raising the lane approximately 25 feet, to accommodate the passenger platforms in the I-15 median, tail track for train storage, a pedestrian underpass for access to/from the platforms, and a maintenance of way access track for trains. These roadwork improvements would occur along a 60-foot portion of the I-15 freeway northbound lane adjacent to the Victor Valley Station. • Additional roadwork at the Dale Evans Parkway interchange accessing the I-15 freeway southbound ramps. • I-15 freeway median widening at Segment 5 to accommodate the modified median-running alignment. • Raising of I-15 southbound lanes just south of the Sloan Road interchange to allow for tracks to exit the I-15 median under the southbound lanes and into the Sloan VMF site. <p>The Project modifications also include small, on-road lane realignments along the I-15 freeway at Segment 6, near Silverado Ranch Boulevard and Blue Diamond Road.</p>
Culverts	<p>The Project design evaluated in September 2020 included drainage and culvert work throughout the Project limits. The current Project modifications include revised designs for three culverts and the addition of four culverts within Segment 5. The associated drainage and grading activities have also been modified accordingly.</p>
Cemex Facility and Rail Connection	<p>A new connection to the existing Cemex industrial rail track is proposed on the north side of Apple Valley, CA near the proposed Victor Valley Station. The connection would consist of a turnout off the existing Cemex track and approximately 2 miles of new track along the east side of I-15 freeway heading north, all within the Caltrans ROW limit.</p> <p>This connection would allow rail transportation of construction materials such as track ballast to the Project area. This reduces the need for trucking construction materials to the Project area.</p>
Ivanpah Traction Power Substation (TPSS)	<p>The Ivanpah modified TPSS 3-mile utility line and 3.5-mile redundant utility line would travel north of the existing solar field to connect to a Southern California Edison (SCE) substation adjacent to the BrightSource Ivanpah Electrical Generating System, west of the I-15 freeway, resulting in the reduction of approximately 0.18 acres of permanent footprint. These modifications are the result of coordination with SCE, BLM and USFWS.</p>
California Maintenance of Way (MOW) Facility	<p>The Project design evaluated in September 2020 considered the relocation of the California MOW Facility from Baker, California, to the I-15 freeway median approximately six miles south of the California/Nevada state line, adjacent to the existing California Agricultural Inspection Station (CAIS). The 25-acre facility was proposed to be utilized for passive equipment storage.</p> <p>The MOW is no longer located adjacent to the CAIS and will be divided between the new site at Sloan and the Victor Valley Station area.</p>

Project Feature	Description of Modification(s)
<p>Sloan Vehicle Maintenance Facility (VMF)</p>	<p>The Project design evaluated in the DesertXpress EIS included an OMSF in close proximity to the original Victorville Station west of the I-15 freeway, and included facilities for maintaining and storing trains. Project modifications evaluated in 2020 included relocating the Victorville Station to the south side of the I-15 freeway at Dale Evans Parkway in Apple Valley. At that time, it was proposed the OMSF would be collocated with the Victorville Station, and a separate location for vehicle maintenance and storage had not been identified.</p> <p>The current Project modifications include locating the vehicle maintenance and storage activities at a site located in Segment 6 west of and within 1.5 miles of the I-15 freeway, and south of Sloan Road; the Victor Valley Station permanent footprint would remain unchanged. An additional freight track corridor will be constructed to connect the VMF to the adjacent UPRR.</p> <ul style="list-style-type: none"> ▪ Brightline West have filed a connection request and are coordinating with UPRR regarding the connection design and operational concepts. UPRR have granted preliminary approval of this rail connection, which would be subject to additional design development. <p>The Sloan VMF and adjacent UPRR connection would require 246 acres of permanent footprint and 105 acres of temporary footprint,⁶ and includes:</p> <ul style="list-style-type: none"> ▪ Storage and staging tracks and overhead catenary system from which trains would be mobilized for daily operations. ▪ Equipment and operations associated with the Sloan VMF, including but not limited to a train car wash station, a train performance monitoring station, an Operations Control Center, a power substation and distribution lines, utility connections, circulation system, site control, fencing, and parking. <p>The Sloan VMF will be a permanent workplace for approximately 100 employees related to either the maintenance of the Brightline West train fleet or performing other functions such as driving the trains. These facilities would be located on land under BLM jurisdiction and would therefore require a ROW grant lease from BLM.</p>

Temporary Construction Areas (TCAs)

TCAs are areas that would be utilized for construction staging and storage. No permanent project features would be installed in these areas, and they would be restored/vacated upon completion of construction. The modified Project includes an additional 202 TCAs located within Caltrans/NDOT ROW along the I-15 freeway corridor for construction of the rail alignment. These are in addition to TCAs previously identified in the original project description and the September 2020 Reevaluation. The majority of these additional TCAs are areas located within the existing I-15 freeway ROW. The addition of these TCAs adds 1,492 acres of temporary footprint to the project.⁷ The Sloan VMF facility footprint includes 105 acres of temporary footprint required for constructing the Sloan VMF and UPRR Connection.

⁶ While the Sloan VMF would require additional permanent and temporary footprint, the overall modified Project footprint would not be significantly larger than the original Project footprint or the footprint evaluated in the September 2020 Reevaluation, because of footprint reductions in other areas.

⁷ As more of the alignment has been shifted to be within the I-15 freeway median, additional TCAs are proposed since room for construction within the I-15 freeway median is more limited and needs to be spread out throughout the alignment.

3.0 Methodology

In analyzing the potential environmental effects of the proposed Project modifications, FRA considered whether the proposed Project modifications, including the newly proposed Sloan VMF, could result in substantial changes to resource topics evaluated in the 2011 DesertXpress EIS and the September 2020 Reevaluation. This allowed FRA to assess whether there are substantial changes in the proposed action relevant to environmental concerns that would require FRA to prepare a supplemental EIS, consistent with FRA's environmental procedures and 40 CFR § 1502.91.

Section 4.0 includes the environmental analysis for modifications to the alignment, mainline ancillary facilities, and TCAs, as these features are similar in nature and primarily occur along and within the existing I-15 freeway ROW. Section 5.0 includes a separate analysis for the Sloan VMF. The analysis of impacts for the Sloan VMF is separated to facilitate BLM's review, as the Sloan VMF is proposed on land owned and managed by BLM. FRA's determination as to whether a supplemental EIS is required considers the evaluation of all Project modifications listed, including the Sloan VMF.

Regulatory Updates. This category includes new laws, regulations, or policies enacted since the DesertXpress EIS and September 2020 Reevaluation. Federal, state, and local regulatory updates that took place after July 2011 were evaluated to determine applicability to the modified Project. The 2011 DesertXpress EIS noted that the Project is exempt from the California Environmental Quality Act (CEQA) and other state and local land use and environmental regulations, consistent with the Surface Transportation Board's (STB) 2007 declaratory order.⁸ Nevertheless, state and local land use and environmental regulations were considered in the discussion of resource topics below, consistent with the DesertXpress EIS approach which evaluated state and local regulations.

This category also identifies changes in the existing physical environment that have occurred, if any, since the DesertXpress EIS and September 2020 Reevaluation. The affected environment was assessed for each resource topic to identify changes in the resource or features within the Project area. Changes in the affected environment are cited, summarized, and evaluated against the Project to determine if new significant impacts would occur.

Effects Analysis. This category identifies whether the Project modifications that have occurred since issuance of the DesertXpress ROD and September 2020 Reevaluation would result in substantial changes in impacts from those disclosed in the September 2020 Reevaluation or 2011 DesertXpress EIS.

Mitigation Measures. This category identifies and addresses the applicability of mitigation measures originally established in the DesertXpress EIS, revised in the September 2020 Reevaluation and, where applicable, identifies new or revised measures.

4.0 Environmental Consequences: Alignment, Mainline Ancillary Features, and Temporary Construction Areas

This section evaluates whether the mainline Project modifications described in Table 2-1 above, except for the Sloan VMF, would result in substantial changes to the evaluation of effects established in the

⁸ 49 U.S.C. § 10901 grants STB exclusive jurisdiction over the construction and operation of interstate railroad projects. STB's declaratory order found that the Project falls under STB's jurisdiction because the Project alignment would connect California and Nevada. [https://www.stb.gov/decisions/readingroom.nsf/UNID/OCEC0B2F00B4E90D85257306006C9F38/\\$file/37656.pdf](https://www.stb.gov/decisions/readingroom.nsf/UNID/OCEC0B2F00B4E90D85257306006C9F38/$file/37656.pdf)

DesertXpress EIS and September 2020 Reevaluation. Evaluation of the Sloan VMF is provided in Section 5.0 below.

To determine whether Project modifications would result in substantial changes to the evaluation of environmental impacts described in the DesertXpress EIS, FRA reassessed each of the resources analyzed in the DesertXpress EIS based on a 15-percent design for the Project modifications. The 15-percent design results in a conservative estimate of the modified Project footprint and, therefore, the analysis in this Reevaluation conservatively estimates the modified Project impacts. Key design refinements from the current project design are evaluated in this Reevaluation to provide a comprehensive environmental analysis.

FRA determined that because Project modifications relative to alignment, ancillary facilities and TCAs are minor in nature and predominately occur within the active I-15 freeway ROW, desktop/qualitative evaluation was appropriate for the following environmental topics: land use, community, and environmental justice; growth; farmlands and grazing lands; utilities/emergency services; traffic and transportation; visual resources; hydrology and water quality; geology and soils; paleontological resources; hazardous materials; air quality and global climate change; noise and vibration; energy; and cumulative impacts for all resource topics. Changes to the affected environment for these resources would be unlikely to occur or were easily assessed using publicly available resources.

More detailed evaluations were conducted relative to cultural resources and biological resources and documented in technical reports/memoranda.

Mitigation measures were evaluated for each resource topic to determine if new or modified mitigation measures would be required to address the modified Project's environmental impacts as discussed in Section 6.0, Changes in Mitigation Measures.

4.1 LAND USE, COMMUNITY, AND ENVIRONMENTAL JUSTICE

This section evaluates whether the Project modifications would result in substantial changes to the evaluation of effects to land use, community, and environmental justice discussed in the DesertXpress EIS and September 2020 Reevaluation. As previously established in the September 2020 Reevaluation, the September 2020 Project modifications did not result in substantial changes to the evaluation of land use, community, and environment justice impacts disclosed in the DesertXpress EIS.

The evaluation of land use, community, and environmental justice impacts to support this Reevaluation considered changes to the Project footprint, existing land uses, community demographics, and local land use designations. Consistent with the analysis in the DesertXpress EIS and September 2020 Reevaluation, local land use designations were considered even though the Project would be exempt from local land use regulations.⁹

⁹ STB issued a declaratory order on June 25, 2007, regarding STB's authority under 49 U.S.C. 10901. In general, STB has exclusive jurisdiction over construction and operation of interstate railroads. STB's declaratory order determined that the Project falls under STB's jurisdiction because the Project alignment would connect California and Nevada. Under STB's jurisdiction, the Project would be exempt from state and local land use and environmental requirements.

4.1.1 REGULATORY UPDATES

FEDERAL

The DesertXpress EIS and September 2020 Reevaluation identified Federal agencies with authority over land uses within two miles of the Project. The DesertXpress EIS and September 2020 Reevaluation assumed the Project would not impact land uses beyond this distance. As the modified Project would pass within 1 mile of lands operated by the following Federal agencies, the following land use regulations would still apply:

- BLM: Ancillary facility footprint would occur on lands managed by the BLM.
- The US Department of Defense: Segment 2 would be within 1 mile of the US Marine Corps logistics base in Yermo.
- The National Park Service: Segments 3 and 4 would pass within 1 mile of the Mojave National Preserve, a preserve managed by the National Park Service.
- Federal Aviation Administration: The Project would be within 1 mile of the proposed Ivanpah Valley Airport and the existing Jean Sport Aviation Center.

The Project modifications could potentially conflict with land use policies of the above agencies through the use of lands owned by these agencies or through interference with existing land uses where the modified Project is adjacent to these lands. The Project modifications would result in the use of land managed by BLM in areas where the Project features occur outside of the I-15 freeway ROW along Segments 3, 4, 5, and 6. The modified Project facilities would not directly encounter the lands of other Federal agencies. As discussed in Section 4.1.3, Conflict with Land Use Plans, Policies, or Regulations, mitigation measures would be applied to avoid or reduce any potential conflict with planned uses at these locations.

Desert Renewable Energy Conservation Plan

The Desert Renewable Conservation Plan (DRECP) encompasses 22.5 million acres in the desert regions and adjacent lands of seven counties within southern California, including San Bernardino County. The DRECP focuses on streamlining renewable energy development and conserving unique and valuable desert ecosystems. BLM signed the DRECP Land Use Plan Amendment (LUPA) Record of Decision in September 2016, which covers 9.8 million acres of land under BLM management within the total 22.5 million-acre DRECP plan area. The DRECP LUPA was not assessed in the 2011 DesertXpress EIS but was evaluated in the September 2020 Reevaluation for potential conflicts that could result from implementation of the Project.

No updates to the plan have occurred since the September 2020 Reevaluation that would pertain to the Project. The BLM would maintain jurisdiction over areas of the Project that cross public land managed by BLM and other facilities authorized on such lands. The Project construction and operation within land under BLM management would continue to be subject to resource-specific goals, objectives, and Conservation and Management Actions (CMAs) outlined within the LUPA. The modified Project would be required to address relevant CMAs on parcels of land under BLM management covered by the DRECP throughout portions of the Project area in California. TCAs would be located primarily in the Caltrans and NDOT ROWs and would be restored/vacated after construction. Additionally, Mitigation Measure LU-3 was developed in the September 2020 Reevaluation to ensure compliance with applicable goals,

policies, and CMAs in areas where the modified Project would traverse land managed by BLM protected by the DRECP.

STATE AND LOCAL

No updates to California regulations governing land use have occurred since the September 2020 Reevaluation that would pertain to the Project.

Land use designations have been updated within Nevada, as the Clark County Master Plan was updated in November 2021 (refer to the discussion of Conflicts with Land Use Plans, Policies, and Regulations in Section 4.1.3, Project Modifications).¹⁰ While land designations have changed in Clark County with the update to the Master Plan, the mainline Project modifications do not involve any land outside the existing I-15 NDOT freeway ROW (refer to Section 5.1.1 for further discussion of land use designations under the Clark County Master Plan at the Sloan VMF site).

As the Project still includes land in both California and Nevada, the California Department of Transportation, Nevada Department of Transportation and the BLM would have the same authority over the Project related to facilities located within their area's of jurisdiction as described in the DesertXpress EIS and September 2020 Reevaluation.

Clark County Conservation of Public Land and Natural Resources Act of 2002

The Project would be subject to the Clark County Conservation of Public Land and Natural Resources Act of 2002. The September 2020 Reevaluation established Segments 5 and 6 would intersect with a 2,640-foot-wide corridor designated by this Act for transportation uses and supporting infrastructure between the proposed Ivanpah Valley Airport and the City of Las Vegas. The exact boundaries of this corridor have not been defined; however, it is anticipated to parallel the east side of the I-15 freeway.¹¹ The modified Project would avoid effects identified in the September 2020 Reevaluation, since the modified alignment south of Jean, Nevada has been relocated from the east side of the I-15 freeway into the I-15 freeway median. In addition, the Project consists of the uses the Act permits: transportation uses and associated infrastructure and would therefore not result in land use conflicts under this Act. The Project modifications would not result in substantial changes in the evaluation of land use impacts of the DesertXpress EIS or September 2020 Reevaluation.

4.1.2 EFFECTS ANALYSIS

RESIDENTIAL AND BUSINESS DISPLACEMENTS

The former station site identified in the DesertXpress EIS would have required displacement of several existing businesses. The proposed Victor Valley Station and Warm Springs Station footprints have not changed since the September 2020 Reevaluation; none of the project modifications would result in residential or business displacements because they occur predominantly within the I-15 ROW or on undeveloped land immediately adjacent to the freeway. Consistent with the September 2020

¹⁰ Clark County, Nevada. 2021. *Clark County Master Plan*. Available: https://www.clarkcountynv.gov/government/departments/comprehensive_planning_department/divisions/advanced_planning_division/comprehensive_master_plan.php. Accessed: April 2022.

¹¹ Bureau of Land Management. 2019. *Ivanpah Solar Electric Generating System Final Environmental Impact Statement*. Available: https://www.energy.gov/sites/prod/files/nepapub/nepa_documents/RedDont/EIS-0416-FEIS-2010.pdf. Accessed: April 2022.

Reevaluation, the Project modifications would reduce residential and business displacement impacts as compared to the DesertXpress EIS or September 2020 Reevaluation.

DIVISION OF AN ESTABLISHED COMMUNITY

The DesertXpress EIS and September 2020 Reevaluation acknowledged that linear transportation projects can divide established communities. However, the Project would not create new physical divisions because Project facilities would be constructed within or immediately adjacent to existing transportation and utility corridors. The modified rail alignment would be primarily constructed within the I-15 freeway ROW. Mainline ancillary features such as the Cemex rail connection and Ivanpah electrical substation would be located adjacent to the I-15 freeway. As such, the Project modifications would not result in substantial changes in the evaluation of community division impacts of the DesertXpress EIS or September 2020 Reevaluation.

INTERFERENCE WITH NORMAL FUNCTIONING OF ADJACENT LAND USES

The DesertXpress EIS and September 2020 Reevaluation assessed the Project's compatibility with adjacent land uses to determine if Project construction or operation would interfere with normal functioning of these land uses. The modified Project alignment would be placed within the I-15 freeway ROW to greatly reduce conflicts with non-transportation land uses outside of the I-15 freeway ROW.

As described in Table 2-1, alignment modifications to the Project include modifications to the Segment 1 alignment from Apple Valley to Lenwood, and the Segment 5 alignment from Primm to Sloan Road. Land use designations along the alignment include Public Facility, Commercial, Resource/Land Management, Mixed-Use, Neighborhood, Business, and Open Lands in San Bernardino County.¹² In Clark County, land use designations along the alignment include Entertainment, Neighborhood, Public Use, Business Employment, and Neighborhood Commercial land uses.¹³ However, the alignment modifications mentioned above would result in the entirety of the rail alignment in Segment 1 and Segment 5 being within the I-15 freeway median, resulting in fewer effects to existing adjacent land uses in these areas.

Likewise, mainline ancillary feature modifications including highway ramp realignments, CHP emergency crossover upgrades, additional roadwork at the Dale Evans Parkway roundabout, I-15 freeway median widening, culvert additions at Segment 5, and additional Cemex rail connections would be primarily located within or along the I-15 freeway ROW to greatly reduce conflicts with non-transportation land uses outside of the I-15 freeway ROW. However, other mainline ancillary feature modifications including emergency crossovers could result in new or previously identified footprint impacts outside of the I-15 freeway ROW. Conflicting land use impacts and connected mitigation measures for these facilities are further described in the Conflicts with Land Use Plans, Policies, and Regulations discussion, and Conflicts with Airport Land Uses discussion below.

The DesertXpress EIS and September 2020 Reevaluation concluded the Project would not negatively impact adjacent land uses through incorporation of mitigation measures pertaining to utilities and emergency services, visual resources, transportation, air quality, and noise. The Project modifications would not change the DesertXpress EIS or September 2020 Reevaluation conclusions regarding impacts

¹² San Bernardino County. 2020. LU-1 Land Use Map.

<https://www.arcgis.com/apps/webappviewer/index.html?id=f23f04b0f7ac42e987099444b2f46bc2>. Accessed: April 2022.

¹³ Clark County. 2021. South County Planned Land Use Maps.

https://www.clarkcountynv.gov/government/departments/comprehensive_planning_department/library/maps.php#outer-8513sub-8529. Accessed: April 2022.

on adjacent land uses, because the modified Project would still be primarily located within the I-15 freeway corridor. As such, the mitigation measures identified in the DesertXpress EIS and September 2020 Reevaluation that would avoid or minimize negative impacts to adjacent land uses would still apply to the modified Project. Therefore, the Project modifications would not result in substantial changes in the evaluation of impacts on the normal functioning of adjacent land uses of the DesertXpress EIS or September 2020 Reevaluation.

CONFLICT WITH LAND USE PLANS, POLICIES, AND REGULATIONS

The footprints for the proposed station sites have not changed since the September 2020 Reevaluation and would therefore not change the previous evaluations' conclusions regarding land use conflicts. The DesertXpress EIS and September 2020 Reevaluation concluded that the Project would be highly compatible with transportation land use designations along the I-15 freeway corridor. Because the modified alignment would be within the I-15 freeway ROW, the alignment would not result in any conflicts with applicable land use plans. The majority of the Project modifications to mainline ancillary features would occur within or adjacent to the I-15 freeway ROW and would therefore not conflict with existing land use policies, with the exception of the Barstow electrical substation and Ivanpah electrical substation. However, both the Barstow and Ivanpah electrical substations would occur within the same location as analyzed in the September 2020 Reevaluation, and modifications to the Ivanpah electrical substation would result in the reduction of approximately 0.18 acres of permanent impact. The Project modifications to ancillary features would therefore not change the DesertXpress EIS or September 2020 Reevaluation conclusions regarding land use conflicts.

Table 4-1 compares the compatibility of land use designations encountered by each ancillary facility outside of the I-15 freeway ROW to the compatibility of land use designations identified by the DesertXpress EIS for these features. Modified Project facilities are classified using the same methodology applied as the previous evaluations, each having high, low, or medium compatibility with existing land uses or a combination of these three categories where the Project encounters multiple land use designations.

Project modifications, overall, would reduce potential conflicts with applicable land use plans as compared to the original DesertXpress EIS. As identified in the September 2020 Reevaluation, Project utility corridors and the placement of the alignment would be located within or directly adjacent to the I-15 freeway ROW and would avoid substantial land use conflicts identified in the DesertXpress EIS. Therefore, the Project modifications would not result in substantial changes in the evaluation of land use plan, policy, or regulation impacts of the DesertXpress EIS of September 2020 Reevaluation.

Table 4-1 Compatibility with Designated Land Use

Segment/ Project Feature	Modified Project Footprint	September 2020 Reevaluation Land Use Designation	September 2020 Reevaluation Compatibility with Land Uses	Current Land Use Designation	2023 Reevaluation Project Compatibility with Current Land Uses
Segment 1	Cemex Rail Connection	N/A	N/A	Resource/Land Management	High
Segment 2	Barstow Electrical Substation, Temporary Construction Areas	Resource Conservation Open Space	Low	Resource Conservation Open Space	Low
Segment 2	Temporary Construction Areas	Resource/Land Management, Commercial	Low-High	Resource/Land Management, Commercial	Low-High
Segment 3	Temporary Construction Areas, Emergency Crossovers	General Commercial, General Industrial, Diverse Use, Public Quasi Public, Resource/Land Management	Low-High	General Commercial, General Industrial, Diverse Use, Public Quasi Public, Resource/Land Management	Low-High
Segment 4	Ivanpah Electrical Substation, Temporary Construction Areas	Resource/Land Management	Low	Resource/Land Management	Medium
Segment 5	Temporary Construction Areas	Public Facilities, Open Lands, Commercial tourist	Low-High	Corridor Mixed-Use, Neighborhood Commercial, Open Lands	Low-High
Segment 6	Temporary Construction Areas	Commercial Tourist	Medium	Business Employment, Open Lands, Entertainment Mixed Use	Medium

N/A = Not Applicable

CONFLICTS WITH AIRPORT LAND USES

The September 2020 Reevaluation identified the closest airport to the Project in Apple Valley is the Osborne Private Airport, approximately four miles southwest of the Victor Valley Station and OMSF site. The September 2020 Reevaluation established that a station site at this location would not create a new conflict with this airport. The Victor Valley Station footprint has not changed since the September 2020 Reevaluation. The Cemex rail connection is located approximately 2.5 miles from the Osborne Private Airport.

The rail alignment would pass in the vicinity of Jean Sport Aviation Center, which is located east of the I-15 freeway in Segment 5. The DesertXpress EIS concluded that the Project would not conflict with this airport because the alignment would parallel its runways. Paralleling the runways would prevent Project facilities, such as overhead catenary lines, from interfering with airport operations. The modified alignment would be relocated from east of the I-15 freeway into the I-15 freeway median at this location. Thus, the Project modifications would not conflict with the operation of Jean Sport Aviation center.

Regarding the planned Ivanpah Valley Airport, the rail alignment would pass near lands designated for future construction of the Airport south of the Jean Sport Aviation Center in Segment 5. Clark County plans on constructing the proposed Ivanpah Valley Airport along the eastern side of the I-15 freeway between Primm and Jean in Nevada.¹⁴ The modified Project would relocate the rail alignment from the east side of the I-15 freeway to the I-15 freeway median in this area. The DesertXpress EIS and September 2020 Reevaluation identified Mitigation Measure LU-2 to address potential conflicts with planned and existing airports. This mitigation measure would still apply and would avoid or reduce any potential conflict with planned uses at this airport facility.

The rail alignments analyzed in the DesertXpress EIS extended along the west side of the I-15 freeway past McCarran Airport¹⁵. The modified Project would end south of McCarran Airport at the Warm Springs Station, as established in the September 2020 Reevaluation. As a result, the modified Project does not include facilities within McCarran Airport runway protection zones; the southernmost limit of the McCarran Airport runway protection zone is approximately 1 mile northeast from the northernmost limit of the Warm Springs Station.¹⁶ Consistent with the assessment in the September 2020 Reevaluation, the modified Project would reduce potential conflicts with the McCarran Airport as compared to the DesertXpress EIS.

Portions of the modified alignment would be located within a 60 decibel (dB) subzone surrounding McCarran Airport, and the Warm Springs Station would be located within 60- and 65-dB subzones. According to the *2014 Enterprise Land Use Plan*, land use restrictions do not exist in these subzones for transportation land uses such as the Project as disclosed in the September 2020 Reevaluation.¹⁷ The

¹⁴ Federal Aviation Administration. 2007. Southern Nevada Supplemental Airport Environmental Impact Statement. Available: http://www.aerohabitat.eu/uploads/media/28-08-2008_-_Southern_Nevada_Airport_EIA_Process_Report_June2007_01.pdf. Accessed: April 2022.

¹⁵ The McCarran Airport was renamed to the Harry Reid International Airport in December 2021. McCarran Airport is used in this document for consistency with the DesertXpress EIS and September 2020 Reevaluation.

¹⁶ McCarran Airport Environs. n.d. Available: https://maps.clarkcountynv.gov/gisplot_pdfs/cp/McCarran-AirportEnvirons.pdf. Accessed: April 2022.

¹⁷ Clark County. 2014. *Enterprise Land Use Plan*. Available: <https://files.clarkcountynv.gov/clarknv/Comprehensive%20Planning/Land%20Use%20Planning/Enterprise/2014%20Enterprise%20Land%20Use%20Plan.pdf?t=1602798319013&t=1602798319013>. Accessed: April 2022.

Project modifications would not result in substantial changes in the evaluation of airport land use impacts of the DesertXpress EIS or September 2020 Reevaluation.

ENVIRONMENTAL EFFECTS DISPROPORTIONATELY BORNE BY LOW-INCOME OR MINORITY POPULATIONS

The DesertXpress EIS and September 2020 Reevaluation identified locations where the Project would intersect or occur within 1 mile of environmental justice communities, using 2000 US Census data, and 2017 and 2018 US Census data, respectively.¹⁸ Because census tract boundaries have been redrawn since publication of the DesertXpress EIS, changes in demographics and the Project impacts on nearby communities cannot be described in the exact terms of the DesertXpress EIS analysis. However, the DesertXpress EIS analysis was replicated using 2019 US Census data.^{19,20}

Table 4-2 provides a comparison of the modified Project's proximity to environmental justice block groups, relative to those identified in the DesertXpress EIS and September 2020 Reevaluation.

The DesertXpress EIS and September 2020 Reevaluation concluded that impacts to environmental justice block groups would be minimized through mitigation measures to address noise, dust, traffic, visual resources, and utilities. Because the Project Modifications move most of the rail facilities to within the median of the I-15 freeway and areas added that are outside the I-15 freeway ROW (Sloan VMF) are located in areas of industrial uses and undeveloped land, there would be fewer EJ communities crossed or within one mile of the Project facilities than those evaluated in the original project and September 2020 Reevaluation. As a result, impacts to environmental justice communities such as noise, air quality, traffic, visual resources, utilities, or community resource impacts would be reduced as a result of the project modifications. However, the project would continue to be located in proximity to environmental justice communities along and near the I-15 freeway corridor and as such the mitigation measures established in the DesertXpress EIS and carried forward in the September 2020 Reevaluation (described in Section 4.1.3, Mitigation Measures), would remain appropriate in order to reduce and avoid impacts to environmental justice block groups.

Based on this analysis the modified Project would not result in new environmental effects disproportionately borne by environmental justice communities and the Project modifications would not result in substantial changes in the evaluation of environmental justice impacts of the DesertXpress EIS or September 2020 Reevaluation.

¹⁸ Environmental justice communities defined in the DesertXpress EIS include low-income populations greater than 25 percent of the total population of the community, minority populations greater than 50 percent of the total population of the community, and low-income or more minority populations 10 percentage points higher than the city or county average.

¹⁹ United States Environmental Protection Agency. 2019. EJSCREEN: Environmental Justice Screening and Mapping Tool. Available: <https://www.epa.gov/ejscreen>. Accessed April 2022.

²⁰ 2019 data is the most recent Census data available; complete 2020 data is unavailable due to the impacts of the COVID-19 pandemic on data collection.

Table 4-2 Environmental Justice Communities

Modified Project Facilities	Number of Environmental Justice Block Groups (EJ) Communities Crossed by or Within One Mile of DesertXpress EIS Preferred Alternative Facilities	Number of EJ Communities Crossed by or Within One Mile of September 2020 Reevaluation Project Facilities	Number of EJ Communities Crossed by or Within One Mile of the Current (2023) Modified Project Facilities
Victor Valley Station	Within 1 mile of 2 EJ census blocks	Within 1 mile of 2 EJ census blocks	Within 1 mile of 1 EJ census block
Segment 1	Cross 2 EJ census blocks	Cross 3 EJ census blocks	Cross 1 EJ census block
Segment 2	Within 1 mile of 4 EJ census blocks	Cross 12 EJ census blocks	Cross 6 EJ census blocks and within 1 mile of 3 EJ census blocks
Segment 3	Cross 3 EJ census blocks	Cross 2 EJ census blocks	Cross 1 EJ census block
Segment 4	Cross 1 EJ census block	Cross 1 EJ census blocks	Cross 1 EJ census block
Segment 5	Outside any EJ census block	Cross 2 EJ census blocks	Cross 1 EJ census block
Segment 6	Cross 4 EJ census blocks	Cross 5 EJ census blocks	Cross 1 EJ census block
Warm Springs Station	Within 1 mile of 1 EJ census block	Within 1 mile of 6 EJ census blocks	Within 1 mile of 1 EJ census blocks

4.1.3 MITIGATION MEASURES

The following mitigation measures established in the DesertXpress EIS and revised in the September 2020 Reevaluation would avoid adverse land use effects:

- Mitigation Measure LU-1: Rail Alignment Design in One-Engine Inoperative Zones
- Mitigation Measure LU-2: Rail Alignment Design in Existing and Planned Runway Zones
- Mitigation Measure LU-3: DRECP Land Use Plane Amendment Conservation and Management Action Compliance, established in the September 2020 Reevaluation, would still apply to the modified Project to ensure compliance with applicable goals, policies, and CMAs where the Project would traverse land under BLM management protected by the DRECP LUPA.

Additionally, mitigation measures pertaining to the resource topics listed below would be implemented to avoid and minimize impacts on adjacent land uses and environmental justice communities:

- **Utilities.** Avoidance or minimization of conflicts with existing utility infrastructure (including coordination with existing utility providers).
- **Traffic.** The addition of signalization and/or lanes to the intersection approaches.
- **Visual Resources.** Use of aesthetically pleasing materials for the rail alignment that minimize reflectivity, use of architecture and earth tone colors at the Victor Valley Station site that reflect the surrounding desert landscape, design of signage at the Victor Valley Station site to reflect the scale and character of the site and surroundings, use of contour grading, orderly construction site

management, minimization of light spillover during construction, and use of visual screening of construction areas as appropriate. Coordination with stakeholder agencies to create a unified aesthetic theme that supports the aesthetic goals of the community, including specific design elements part of the Aesthetic and Landscape Task Force (ALTF). The aesthetic treatment of the structures shall involve color, texture, and patterns that tie into the Brightline West Project's Project Aesthetic and Landscape Masterplan (PALM) to create a visual link between the structures and other Project elements along the corridor.

- **Air Quality.** Use of best management dust control practices to minimize air quality impacts during construction.
- **Noise.** Installation of noise barriers, use of sound and vibration reducing materials, relocation of crossovers or special track work, property acquisitions, limited construction times, limited locations of construction.

4.2 GROWTH

This section evaluates whether the Project modifications would result in substantial changes to the evaluation of effects to regional population, housing, and employment effects discussed in the DesertXpress EIS and September 2020 Reevaluation. As previously established in the September 2020 Reevaluation, the September 2020 Project modifications did not result in substantial changes to the evaluation of effects to growth of the DesertXpress EIS.

4.2.1 REGULATORY UPDATES

No updates to Federal, state, or local regulation that pertain to the modified Project's effects on local and regional growth have occurred since the September 2020 Reevaluation. Additionally, no changes in the physical environment pertaining to the modified Project have occurred since the September 2020 Reevaluation that would result in substantial changes to the evaluation of local and regional growth.

4.2.2 EFFECTS ANALYSIS

CONSTRUCTION-PERIOD EMPLOYMENT

The DesertXpress EIS estimated that Project design and construction would have a positive economic effect on the Project area, generating approximately 28,384 jobs in San Bernardino County and 17,469 jobs in Clark County, equating to a total of 45,853 new employment opportunities in the Project vicinity. The modified Project footprint would not substantially differ, and thus the conclusions regarding construction-period employment would not substantially change from those disclosed in the September 2020 Reevaluation. The modified Project would still contribute positively to local employment opportunities and economic growth throughout the modified Project area during construction. Voluntary Mitigation Measure GRO-1 would still apply to ensure jobs generated by the Project would be made available to Barstow residents. Thus, the Project modifications would not result in substantial changes in the evaluation of construction-period employment impacts of the DesertXpress EIS or September 2020 Reevaluation.

PERMANENT EMPLOYMENT

The DesertXpress EIS and September 2020 Reevaluation analyzed permanent employment from Project operation effects on regional growth. The modified Project would require workers to operate and maintain trains, stations, and other Project facilities. Estimates of total permanent jobs created

throughout Project operation were compared to regional job projections in the anticipated Project buildout year (2030, as established by the DesertXpress EIS). These permanent job estimates did not result in significant effects on local employment growth. The modified Project would not change the September 2020 Reevaluation conclusions regarding permanent employment because the modified footprint would remain relatively the same, and the size and locations of the Victor Valley Station and Warm Springs Station have remained unchanged since the September 2020 Reevaluation. Voluntary Mitigation Measure GRO-1 would still apply for the modified Project, in order to ensure jobs generated by the Project would be made available to Barstow residents. Thus, the Project modifications would not result in substantial changes in the evaluation of permanent employment impacts of the DesertXpress EIS or September 2020 Reevaluation.

TRANSIT-ORIENTED DEVELOPMENT POTENTIAL

The DesertXpress EIS and September 2020 Reevaluation analyzed the Project's potential to induce transit-oriented development (TOD), which is development that aims to promote sustainable urban growth through densification near transit stations. The previous evaluations concluded that the Project would result in a small potential to induce TOD because the Project would primarily provide non-work trips between the Victorville and Las Vegas stations. The modified Project would not change the September 2020 Reevaluation conclusions regarding induced TOD because it would still connect the Victorville area and Las Vegas and would not substantially change the nature of trips provided during Project operation. Thus, the Project modifications would not result in significant TOD development impacts not evaluated in the DesertXpress EIS or September 2020 Reevaluation. Voluntary Mitigation Measure GRO-2 would still apply to the modified Project, to encourage implementation of transit oriented and master planned development.

ECONOMIC VITALITY

The economies of several communities in the Project vicinity, including Barstow, Baker, Primm, and Jean, are heavily dependent on visitor-serving retail and commercial uses for people driving through the I-15 freeway. The ridership study prepared for the DesertXpress EIS estimated up to 5 million annual automobile trips between southern California and Las Vegas would be diverted to high-speed rail, meaning the Project has the potential to negatively affect future economic growth in these communities because the Project would not include stations in the aforementioned communities. Thus, the DesertXpress EIS and September 2020 Reevaluation concluded the Project would result in potential minor adverse effects to the economic vitality of these communities.

The proposed Project would not change these conclusions regarding economic vitality because the Project modifications are not anticipated to substantially increase or decrease ridership. Furthermore, the economic composition of Barstow, Baker, Primm, and Jean have not substantially changed since the September 2020 Reevaluation, and travel demand between southern California and Las Vegas is still anticipated to increase. Therefore, the Project modifications would not result in substantial changes in the evaluation of economic vitality impacts of the DesertXpress EIS or September 2020 Reevaluation.

4.2.3 MITIGATION MEASURES

Voluntary Mitigation Measures GRO-1 and GRO-2 were established in the DesertXpress EIS and revised in the September 2020 Reevaluation. The DesertXpress EIS concluded implementation of the Project would not result in any adverse direct or indirect growth effects and that no mitigation measures would be required. However, DesertXpress Enterprises, LLC proposed the following voluntary mitigation

measures to address concerns raised by local jurisdictions regarding potential economic impacts of the Project:

- Voluntary Mitigation Measure GRO-1. Voluntary Applicant Coordination with City of Barstow and San Bernardino County for Employment.
- Voluntary Mitigation Measure GRO-2. Voluntary Applicant Coordination for Land Use Planning.

4.3 FARMLANDS AND GRAZING LANDS

This section evaluates whether the Project modifications would result in substantial changes to the evaluation of effects to farmland and grazing land designations (*assigned by the California Department of Conservation (DOC), Clark County Comprehensive Plan, and BLM*) discussed in the DesertXpress EIS and September 2020 Reevaluation. As previously established in the September 2020 Reevaluation, the September 2020 Project modifications did not result in substantial changes to the evaluation of visual impacts disclosed in the DesertXpress EIS.

4.3.1 REGULATORY UPDATES

FARMLAND

Within Nevada, there are no designated farmlands within or near the Project area as established in the Conservation Element of the Clark County Comprehensive Plan. Within California, the most recent DOC Farmland Mapping & Monitoring Program update (2016) does not include new Prime Farmland, Unique Farmland, Farmland of Statewide Importance, Farmland of Local Importance, nor lands under Williamson Act Contracts within the Project area.

GRAZING LAND

The DesertXpress EIS and September 2020 Reevaluation evaluated the direct and indirect effects to grazing lands outlined below:

- Permanent conversion of grazing land to transportation uses
- Severing of livestock access to available water sources
- Removal of livestock fencing

The locations of designated grazing allotments within BLM managed lands within or near the Project area have not changed since the September 2020 Reevaluation.²¹

4.3.2 EFFECTS ANALYSIS

ALIGNMENT

The modified alignment would not require conversion of grazing land because the modified alignment would be constructed within the I-15 freeway ROW from Segment 1 through Segment 5. Additionally, given there are no changes in the amount or location of protected farmland in the Project area and the modified Project avoids direct and indirect impacts on Prime Farmland, the Project modifications would not result in substantial changes in the evaluation of farmland impacts of the DesertXpress EIS or September 2020 Reevaluation.

²¹ Bureau of Land Management. 2022. *BLM National Grazing Allotments Map Service*. Available: <https://landscape.blm.gov/geoportal/rest/document?f=html&id=%7B8C2D42AB-A6B9-4DF7-AD77-E98A1BD8468A%7D>. Accessed: June 2022.

ANCILLARY FACILITIES

The modified Project includes additional roadwork proposed for the Project that was not previously evaluated. This includes modifications to the I-15 freeway near Victor Valley Station and to the Dale Evans Parkway interchange, and the widening of the I-15 median in Segment 5. Though the Dale Evans Parkway and Cemex rail connection are adjacent to grazing land, the modified Project would not change the September 2020 Reevaluation conclusions regarding grazing land impacted because the Project modifications would primarily occur within the I-15 freeway ROW.

Modifications to highway ramp realignments and emergency crossovers would be located primarily within the existing Caltrans/NDOT, and local ROWs along the I-15, including the relocation and addition of emergency crossovers listed in Table 2-1. Project modifications further include potential I-15 median widening and four culvert additions within Segment 5 near the town of Sloan. However, none of the Project modifications listed within Segment 5 are located on grazing lands or farmland.

Mitigation Measures FAR-2, FAR-3, FAR-4, and FAR-5 would still apply to minimize direct and indirect effects to grazing land where ancillary facilities would occur outside the I-15 freeway ROW. Thus, the modified ancillary facilities would not result in substantial changes in the evaluation of grazing land impacts of the DesertXpress EIS or September 2020 Reevaluation.

4.3.3 MITIGATION MEASURES

The following mitigation measures established in the DesertXpress EIS and revised in the September 2020 Reevaluation would avoid adverse effects related to farmlands and grazing lands.

- Mitigation Measure FAR-2: Livestock Access to Water
- Mitigation Measure FAR-3: Fencing and Gate Modifications
- Mitigation Measure FAR-5: Purchase Grazing Allotment

4.4 UTILITIES/EMERGENCY SERVICES

This section evaluates whether the Project modifications would result in substantial changes to the evaluation of effects to utilities and emergency services discussed in the DesertXpress EIS and September 2020 Reevaluation. As previously established in the September 2020 Reevaluation, the September 2020 Project modifications did not result in substantial changes to the evaluation of utilities and emergency services impacts disclosed in the DesertXpress EIS.

4.4.1 REGULATORY UPDATES

FEDERAL

No updates to Federal, state, or local regulations governing utilities have occurred since the September 2020 Reevaluation that would pertain to the modified Project. Additionally, no changes in the physical environment have occurred since the September 2020 Reevaluation that would result in substantial changes to the evaluation of utilities for the modified Project.

4.4.2 EFFECTS ANALYSIS

ELECTRICITY AND GAS

The modified Project includes electric train locomotives that would require interconnections with regional electricity services. Station sites and ancillary features including the electrical substations in Ivanpah and Barstow, and the proposed Cemex rail connection, would also require electricity and gas services. Mitigation Measure UTIL-1 would still apply to the modified Project to avoid or minimize impacts to electrical providers during operation of the modified Project. Furthermore, DesertXpress Enterprises, LLC is coordinating with electricity providers to ensure the adequacy of regional power delivery systems. Thus, the Project modifications would not result in substantial changes in the evaluation of electricity and gas impacts of the DesertXpress EIS or September 2020 Reevaluation.

WATER SUPPLY

The DesertXpress EIS identified the Victorville Water District (VVWD) and the Las Vegas Valley Water District (LVVWD) as the Project water providers in California and Nevada, respectively. There would be no changes to the proposed station footprints. The rail alignment and ancillary facilities would not generate water demand because they would not require landscaping or other water-related uses. Furthermore, the DesertXpress EIS included Mitigation Measures UTIL-1, UTIL-2, and UTIL-3 to reduce water usage, prepare a water supply assessment for the Victor Valley Station site, and procure a water commitment from the LVVWD. These mitigation measures would still apply to the Project and the Project modifications would not result in substantial changes in the evaluation of water supply impacts of the DesertXpress EIS or September 2020 Reevaluation.

SEWAGE AND WASTEWATER

The DesertXpress EIS identified the Victor Valley Wastewater Reclamation Authority and the Clark County Wastewater Reclamation District as the water treatment providers that would service the Project in California and Nevada, respectively. The station sites and the OMSF would not change as evaluated in the September 2020 Reevaluation, and the rail alignment and ancillary facilities would not require restrooms or other features that would create sewage or wastewater. Mitigation Measure UTIL-1 would still apply to reduce potential impacts of the Project on wastewater treatment services by subsidizing the applicable wastewater treatment service providers. This mitigation measure would still apply to the modified Project and the Project modifications would not result in substantial changes in the evaluation of wastewater impacts of the DesertXpress EIS or September 2020 Reevaluation.

STORMWATER

The DesertXpress EIS determined operation of the Project would introduce new impermeable surfaces that could increase stormwater flows into local stormwater systems. The modified Project would not change the September 2020 Reevaluation conclusions regarding stormwater because it would not substantially alter the amount of impervious surface introduced by the Project. The rail alignment, station sites and OMSF, and ancillary features, would not introduce new impervious footprint areas throughout the Project footprint, and Mitigation Measures UTIL-4 and UTIL-5 would still apply to minimize impacts to stormwater systems. The Project modifications would not result in substantial changes in the evaluation of stormwater impacts of the DesertXpress EIS or September 2020 Reevaluation. Refer to Section 4.8, Hydrology and Water Quality, for a discussion of Project impacts to stormwater during construction.

SOLID WASTE

The DesertXpress EIS identified the Victorville Sanitary Landfill and the Apex Regional Landfill as the landfills that would service the Project in California and Nevada, respectively. While the location and layout of the Project alignment and ancillary features have changed for the modified Project, the anticipated volume of solid waste generated by these facilities during construction and operation would not substantially differ from the assumptions established in the September 2020 Reevaluation. The modified Project would not change the September 2020 Reevaluation conclusions regarding solid waste because substantial capacity still exists at these facilities to accommodate construction-period and operational waste generated by the Project.^{22,23} The Project modifications would not result in substantial changes in the evaluation of solid waste impacts of the DesertXpress EIS or September 2020 Reevaluation.

UTILITY INFRASTRUCTURE CROSSINGS

The Project would cross numerous utility conveyance systems, including gas pipelines, electrical transmission lines, water and wastewater conveyances, and communications lines, potentially reducing the effectiveness of these systems or resulting in human health and safety concerns. New alignment or footprint areas could intersect with utility conveyance systems that were not identified in the DesertXpress EIS or September 2020 Reevaluation, and new conveyance systems may have been constructed since the September 2020 Reevaluation. However, the modified Project would not change the September 2020 Reevaluation conclusions regarding utility infrastructure crossings because Mitigation Measure UTIL-8 would still apply to the Project to avoid or minimize potential adverse effects to water, wastewater, communications, local gas pipelines, and other physical facilities that the proposed rail alignments and stations would cross. The Project modifications would not result in substantial changes in the evaluation of utility infrastructure crossing impacts of the DesertXpress EIS or September 2020 Reevaluation.

EMERGENCY SERVICES

The Project would increase the need for emergency services by creating a new passenger rail system. The modified Project would not change the September 2020 Reevaluation conclusions regarding emergency services because the Project modifications to the alignment and mainline ancillary features would not increase the risk of catastrophic accidents. Additionally, the Project modifications would not result in changes to ridership, emergency protocols, and safety systems such as clear zones and barriers to avoid vehicle intrusion into the modified Project ROW described in Mitigation Measure TRAF-4 (refer to Section 4.5).

The modified Project would incorporate design guidelines provided in the 2011 DesertXpress Highway Interface Manual to facilitate emergency access crossings of portions of the Project alignment located within the I-15 freeway ROW. The Project evaluated in the September 2020 Reevaluation included eight access-controlled emergency crossovers. The modified Project would include two new emergency crossovers at Zzyzx Road and Halloran Springs. Additionally, five previously evaluated emergency crossovers, located near Coyote Lake Road, Basin Road, Baker, and both north and south of Halloran Springs, would be relocated, mainly within existing Caltrans/NDOT ROW. In total, the modified Project

²² County of San Bernardino. 2018. *Countywide Siting Element*.

²³ State of Nevada. 2017. *Solid Waste Management Plan*.

would include 10 emergency crossovers in California, located in Segment 3 between Yermo and Mountain Pass, and one emergency crossover in Nevada approximately 1.5-miles south of Sloan.

Modified Project facilities would be constructed across the same jurisdictions analyzed in the September 2020 Reevaluation and would be served by the same emergency service providers. Mitigation Measures UTIL-6 and UTIL-7 would still apply to the Project, which would require the payment of impact fees for police, fire, and emergency services, and the development and implementation of a comprehensive emergency operations plan. Therefore, the Project modifications would not result in substantial changes in the evaluation of emergency services impacts of the DesertXpress EIS or September 2020 Reevaluation.

4.4.3 MITIGATION MEASURES

The following mitigation measures established in the DesertXpress EIS and revised in the September 2020 Reevaluation would avoid adverse effects to utilities and emergency services:

- Mitigation Measure UTIL-1: Payment of connection and or user/service/tipping fees
- Mitigation Measure UTIL-2: Minimize water usage through the incorporation of water saving devices wherever required or feasible; require drought-tolerant landscaping at all facilities
- Mitigation Measure UTIL-3: Obtain a water commitment from the LVVWD during the design phase
- Mitigation Measure UTIL-4: Rail segments within freeway ROWs shall tie into existing freeway stormwater conveyance devices
- Mitigation Measure UTIL-5: Develop appropriate stormwater conveyance structures/systems at station and maintenance facility sites, as well as points along railroad segments where it is not possible to connect to existing systems
- Mitigation Measure UTIL-6: Payment of impact fees for police, fire, and emergency services
- Mitigation Measure UTIL-7: Develop a comprehensive emergency operations plan
- Mitigation Measure UTIL-8: Avoid or minimize conflicts with existing utility infrastructure

4.5 TRAFFIC AND TRANSPORTATION

This section evaluates whether the Project modifications would result in substantial changes to the evaluation of effects to traffic and transportation discussed in the DesertXpress EIS and September 2020 Reevaluation. As previously established in the September 2020 Reevaluation, the September 2020 Project modifications did not result in substantial changes to the evaluation of traffic and transportation disclosed in the DesertXpress EIS.

4.5.1 REGULATORY UPDATES

No updates to Federal, state, or local regulations governing traffic and transportation have occurred since the September 2020 Reevaluation that would pertain to the modified Project. Additionally, no changes in the physical environment have occurred since the September 2020 Reevaluation that would result in substantial changes to the evaluation of traffic and transportation for the modified Project.

4.5.2 EFFECTS ANALYSIS

FREEWAY LEVEL OF SERVICE

There are no changes to the Victor Valley Station or Warm Springs Station footprints since the September 2020 Reevaluation.

Brightline West has coordinated with FHWA and Caltrans on the proposed roadway modifications along the I-15 freeway for the modified Project. The Project modifications include additional roadwork at the Dale Evans Parkway such as realigning and raising the I-15 freeway northbound lane and additional roadwork at the I-15 southbound ramps. As evaluated in the September 2020 Reevaluation, the Level of Service (LOS) at the southbound on- and off-ramps would operate at unacceptable LOS F during the 2042 Build Out Year. The additional roadwork may improve LOS at the Southbound ramps and Mitigation Measures TRAF-1 and TRAF-4 would still be incorporated to improve LOS at the Victor Valley Station and the I-15 southbound ramps and to mitigate potential adverse effects on highway traffic safety. Thus, the modified Project would still result in LOS impacts at the I-15 southbound ramps at Dale Evans Parkway and would not result in substantial changes in the evaluation of effects to the Victor Valley Station and Warm Springs Station of the DesertXpress EIS or September 2020 Reevaluation.

INTERSECTION LEVEL OF SERVICE

There have been no changes to the Victor Valley Station or Warm Springs Station footprints since the September 2020 Reevaluation. The Project modifications include additional roadwork at Dale Evans Parkway such as realigning and raising the I-15 freeway northbound lane and additional roadwork at the I-15 southbound ramps. The additional roadwork may improve LOS at the southbound ramps at Dale Evans Parkway, and Mitigation Measures TRAF-1 and TRAF-2 would still be incorporated to improve LOS at the Victor Valley Station, the I-15 southbound ramps at Dale Evans Parkway, and the Warm Springs Station. It is anticipated the modified Project would still result in LOS impacts at the I-15 southbound ramp intersections as determined in the September 2020 Reevaluation. The Project modifications would not result in substantial changes in the evaluation of effects to the Victor Valley Station and Warm Springs Station of the DesertXpress EIS or September 2020 Reevaluation.

VEHICLE MILES TRAVELED

The Project is exempt from state and local land use and environmental regulations, including CEQA and the CEQA Guidelines updates addressing vehicle miles traveled (VMT) impacts of projects. While these updates to the CEQA Guidelines were adopted in December 2018, a brief discussion of the modified Project's VMT-related effects was provided in the September 2020 Reevaluation for informational purposes. The September 2020 Reevaluation estimated the Project would result in an annual VMT reduction of approximately 564 million VMT by the build out year in 2042, but would further result in an increase of 46 million VMT annually from induced demand generated by the Project, and an increase of 16 million VMT annually from employee commute trips.^{24,25} Overall, the September 2020 Reevaluation concluded the Project would still result in a substantial reduction in annual VMT (approximately 502

²⁴ VMT reduction associated with trips diverted from automobiles to rail assumed an estimated 8,061,000 passengers annually for the Project by build out year in 2042.

²⁵ VMT increase associated with employee commute trips conservatively assumed 572 daily employees at the Victor Valley Station, and 462 daily employees at the Warm Springs Station, for a total of 1,034 daily employees.

million VMT) due to diversion from automobiles to rail within the I-15 freeway corridor, resulting in a beneficial effect.

The modified Project would still provide an alternate transportation mode from automobiles between Apple Valley and Las Vegas, as the proposed station locations have remained unchanged. Additionally, estimates regarding annual ridership diverted from automobiles during the build out year have not changed under the Project modifications. Thus, the modified Project would still result in substantial reductions in annual VMT along the I-15 freeway corridor and would not result in substantial changes in the evaluation of effects to VMT of the DesertXpress EIS or September 2020 Reevaluation.

ROADWAY SAFETY

Highways

The DesertXpress EIS included a qualitative discussion of highway traffic safety, primarily focusing on clear zones, sight distance, and visual distraction. Project modifications include changes in alignment and other ancillary features, which would affect the ultimate design of facilities, such as earthwork, structural supports, overhead catenary systems, and other components.

While the geographic location of specific safety-related impacts would be different than the Project evaluated in the September 2020 Reevaluation, the nature of these impacts would generally remain unchanged. These impacts could include potential effects related to obstruction of motorists' sight distance, increased severity of run-off road crashes, and visual distractions for motorists (particularly train headlights) during operation of the modified Project, as well as temporary reductions in horizontal and vertical clearances during construction of the Project. However, given the market diversion from automobiles to rail in the I-15 freeway corridor, the modified Project (and associated roadway modifications) would also result in some beneficial effects to highway safety due to a reduction in collisions. Mitigation Measure TRAF-4 would still be applied to fully mitigate the modified Project's potentially adverse effects on highway safety. Therefore, the modified Project would not result in substantial changes in the evaluation of effects to highway safety of the DesertXpress EIS or September 2020 Reevaluation.

Local Streets

While the modified Project would result in added traffic on local streets surrounding the Victor Valley Station and the Warm Springs Station, an increase in traffic alone would generally not constitute a safety hazard. The intersection improvements for both station sites, described in Mitigation Measures TRAF-1 and TRAF-2 respectively, are specifically intended to provide safe and adequate connections between the station and the existing circulation network, and include new traffic signals, turn pockets, and other measures that would minimize traffic hazards such as ROW conflicts. All improvements would be designed according to accepted industry standards such as the Manual on Uniform Traffic Control Devices (MUTCD), the American Association of State Highway and Transportation Officials (AASHTO) Policy on Geometric Design of Highways and Streets, and the National Association of City Transportation Officials Urban Street Design Guide, and would be coordinated with local jurisdictions to ensure

conformance with their specific design practices.^{26,27,28} Thus, the Project modifications would not result in substantial changes in the evaluation of street safety impacts of the DesertXpress EIS or September 2020 Reevaluation.

4.5.3 MITIGATION MEASURES

The following mitigation measures established in the DesertXpress EIS and revised in the September 2020 Reevaluation would avoid adverse effects on traffic and transportation:

- Mitigation Measure TRAF-1: Victor Valley Station
- Mitigation Measure TRAF-2: Warm Springs Station
- Mitigation Measure TRAF-4: Conduct a Design Review within the Parameters Defined in the Highway Interface Manual

4.6 VISUAL RESOURCES

This section evaluates whether the Project modifications would result in substantial changes to the evaluation of aesthetic and visual resources discussed in the DesertXpress EIS and September 2020 Reevaluation. As previously established in the September 2020 Reevaluation, the September 2020 Project modifications did not result in substantial changes to the evaluation of visual impacts disclosed in the DesertXpress EIS.

The visual landscape surrounding the Project area has not changed substantially since the September 2020 Reevaluation. Undeveloped areas traversed by the Project corridor are characterized by low-lying shrubs, desert soils, rolling dunes, and occasional manmade development such as lights and billboards. Human development constitutes a majority of local viewsheds within urban areas (Barstow, Baker, Primm, Jean, and Las Vegas).

4.6.1 REGULATORY UPDATES

The September 2020 Reevaluation utilized a blended methodology to assess effects by individual project components based on guidelines provided by the BLM and FHWA, consistent with the methodology used in the DesertXpress EIS. These visual quality guidelines have not changed since publication of the DesertXpress EIS. No changes in the physical environment have occurred since the September 2020 Reevaluation that would result in substantial changes to the evaluation of visual resources for the modified Project.

4.6.2 EFFECTS ANALYSIS

CONSTRUCTION

The DesertXpress EIS established Project construction activities would involve the use of heavy equipment, stockpiling of soils and materials, and other visual signs of construction. Construction-related visual impacts along the alignment would be temporary in nature and small in scale.

²⁶ Federal Highway Administration. 2019. *Manual on Uniform Traffic Control Devices*. https://mutcd.fhwa.dot.gov/pdfs/2009r1r2/pdf_index.htm. Accessed: April 2022.

²⁷ American Association of State Highway and Transportation Officials. 2018. *A Policy on Geometric Design of Highways and Streets, 7th Edition*. [https://trust.dot.state.wi.us/ftp/dtsd/bts/environment/library/PE/AASHTO-GreenBook-7th-edition\(2018\).pdf](https://trust.dot.state.wi.us/ftp/dtsd/bts/environment/library/PE/AASHTO-GreenBook-7th-edition(2018).pdf). Accessed: April 2022.

²⁸ National Association of City Transportation Officials. 2022. *Urban Street Design Guide*. <https://nacto.org/publication/urban-street-design-guide/>. Accessed: April 2022.

Construction of stations, alignment, and ancillary features related to the Project would involve site preparation and foundation work, framing, and structural construction and finishing work; these visual impacts would be temporary. As the modified Project would remain of a comparable size, scope, and location as analyzed in both the September 2020 Reevaluation and DesertXpress EIS, visual impacts would occur over a similar area.

The modified Project would not require several TCAs, previously identified in the DesertXpress EIS, along the I-15 freeway ROW. Additionally, impacts to the southerly Ivanpah Utility Corridor would be avoided as this Project feature is no longer being considered. However, new TCAs are proposed for the modified Project, which would be primarily located within the I-15 freeway ROW. Visual impacts from construction activities and TCAs would be minimized through implementation of Mitigation Measures VIS-7 through VIS-10. The Project modifications would not result in substantial changes in the evaluation of construction effects to visual quality of the DesertXpress EIS or September 2020 Reevaluation.

OPERATION

Alignment

The modified Project would relocate rail alignment previously adjacent to the I-15 freeway to be within the I-15 freeway median for the entirety of Segment 1 and Segment 5. In addition, as established in the September 2020 Reevaluation, the modified alignment would be largely at-grade, rather than being situated on elevated structures. This would decrease adverse visual impacts, identified in the DesertXpress EIS, since at-grade portions would appear less visually dominant compared to elevated tracks. The modified alignment, which would include passing trains, would not substantially add to the visual impact already created by the I-15 freeway corridor. Mitigation Measures VIS-1 and VIS-4 would still apply to minimize impacts to visual quality resulting from the alignment. The modified alignment would not result in substantial changes in the evaluation of effects to visual quality of the DesertXpress EIS or September 2020 Reevaluation.

Mainline Ancillary Features

Since the September 2020 Reevaluation, several modifications to previously evaluated ancillary features have been proposed. These include the Project modification and relocation of highway on- and off-ramps along the I-15 freeway, the Project modification and addition of new CHP emergency crossovers along the I-15 freeway in Segment 3, additional roadwork to the Dale Evans Parkway roundabout in Segment 1 and widening of portions of the I-15 freeway median near Victor Valley Station and at Segment 5, and the Project modification and addition of culverts along the modified alignment in Segment 5. These Project modifications would not change the conclusions in the September 2020 Reevaluation because these features would be located within the I-15 freeway ROW and would be visually consistent with the existing transportation corridor. Mitigation Measure VIS-1 would still apply to further minimize visual effects associated with the Project modifications to highway on- and off-ramps, and the Project modification and addition of emergency crossovers, roadwork, and culverts. Thus, these modified Project features would not result in substantial changes in the evaluation of effects to visual quality of the DesertXpress EIS or September 2020 Reevaluation.

The September 2020 Reevaluation also evaluated the potential for visual impacts from the Ivanpah Electric Substation, and associated utility corridor which would travel around the BrightSource Energy Ivanpah Solar Electric Generating System. It concluded that the substation and utility corridor would be visually consistent with the existing metal towers, utility lines, electrical generation equipment, and

other infrastructure in the area, and would not result in substantial changes in the evaluation of visual resource impacts from that of the DesertXpress EIS. Since the September 2020 Reevaluation, the Ivanpah Electric Substation utility line has been modified such that it would travel north of, rather than around, the existing solar field to connect to the BrightSource Energy Ivanpah Electrical Generating System, resulting in the reduction of approximately 0.18 acres of permanent footprint. Mitigation Measure VIS-1 would still apply to further minimize visual effects associated with the new electrical substation and utility corridor. Thus, the Ivanpah Electric Substation would not result in substantial changes in the evaluation of effects to visual quality of the DesertXpress EIS or September 2020 Reevaluation.

Areas of Critical Environmental Concern

BLM established numerous ACECs throughout the Project landscape in California that may exhibit scenic value. After BLM's issuance of the Record of Decision for the Desert Renewable Energy Conservation Plan (DRECP) in 2016, five new ACEC's were established that occur within the modified Project footprint. These were the Superior-Cronese, Ivanpah, Shadow Valley, Northern Lucerne Wildlife Linkage, and Soda Mountains Expansion. However, as established in the September 2020 Reevaluation, these ACECs were designated for the value they provide to biological resources and other natural systems, not their potential for scenic value. No new ACECs have been established near the Project footprint since the September 2020 Reevaluation. The Project modifications would not result in substantial changes in the evaluation of visual ACEC impacts of the DesertXpress EIS or September 2020 Reevaluation.

4.6.3 MITIGATION MEASURES

The following mitigation measures established in the DesertXpress EIS and revised in the September 2020 Reevaluation would avoid adverse effects to visual resources:

- Mitigation Measure VIS-1: Rail Features
- Mitigation Measure VIS-2: Victor Valley Station Features
- Mitigation Measure VIS-3: Maintenance Facility Features
- Mitigation Measure VIS-4: Contour Grading
- Mitigation Measure VIS-5: Light and Glare Reduction
- Mitigation Measure VIS-6: Educational Displays
- Mitigation Measure VIS-7: Construction Site Management
- Mitigation Measure VIS-8: Construction Site Lighting
- Mitigation Measure VIS-9: Visual Screening
- Mitigation Measure VIS-10: Freeway Landscaping

4.7 CULTURAL RESOURCES

This section evaluates whether the Project modifications would result in substantial changes to the evaluation of effects to archaeological resources and historic built resources discussed in the DesertXpress EIS and September 2020 Reevaluation.²⁹

²⁹ ICF and Dudek. 2022. *FINAL XpressWest High-Speed Passenger Train Project Archaeological Inventory Report, San Bernardino County, California*. Prepared for FRA. February 2022; Hale et al. 2022. *FINAL XpressWest High-Speed Passenger Train Project Archaeological Inventory Report, Clark County, Nevada*. Prepared for FRA. February 2022; ICF and HNTB. 2022a. *FINAL XpressWest High-Speed Passenger Train Project Historic Built Environment Technical Report: California*. Prepared for FRA;

Cultural resources within the modified Project's Area of Potential Effect (APE), as defined in 36 Code of Federal Regulations (CFR) 800.16(d), were evaluated for the purposes of this analysis. For the purposes of this evaluation, the Project area is synonymous with the APE. The APE is based on preliminary design plans and is the area within which direct, indirect, and cumulative effects from the Project are considered. The APE is characterized by an area of direct impact (APE-ADI), which takes into account vertical depth of ground disturbance and includes the footprint of the alignment, facility features, and ancillary features, and an area of indirect impact (APE-AII), which encompasses and extends beyond the entire area included in the APE-ADI, and takes into account where historic properties may be directly affected by construction and operational activities in addition to changes in patterns of use or changes in historic character through visual interventions, noise, and/or vibration (ICF and Dudek 2022, Hale et al. 2022, ICF and HNTB 2022a, ICF and HNTB 2022b).

4.7.1 REGULATORY UPDATES

No updates to Federal, state, or local regulations governing cultural resources, nor any changes to the existing physical environment, have occurred since the September 2020 Reevaluation that would pertain to the Project. Additionally, no changes in the physical environment have occurred since the September 2020 Reevaluation that would result in substantial changes to the evaluation of cultural resources for the modified Project. FRA is the lead for compliance with Section 106 of the NHPA for the Project.

4.7.2 EFFECTS ANALYSIS

ARCHAEOLOGICAL RESOURCES

An inventory of archaeological resources has been conducted within the APE for both California (ICF and Dudek 2022; Barton and Hale 2022a) and Nevada (Hale et al. 2022; Barton and Hale 2022b).³⁰ The intent of these inventory reports is to provide a status of existing knowledge about cultural resources within the APE identified for the September 2020 Reevaluation including information obtained from the records search and pedestrian survey. Those inventory reports provide an understanding of the likely nature and extent of potential historic properties in proximity to the APE.

Considerations of National Register of Historic Places (NRHP) eligibility and effects to historic properties have been completed for the September 2020 Reevaluation (Hale and Barton 2022a; Hale and Barton 2022b) and will be considered through the process established in the Programmatic Agreement (PA) executed for the Project for this reevaluation and any future APE modifications or design changes. This PA governs compliance with Section 106 of the National Historic Preservation Act (NHPA) to include the process for identification, evaluation, and assessment of effects as a result of APE modifications and design changes. The PA outlines the process for consultation with the Native American Tribes (Tribes) and other Consulting Parties. FRA will seek comment from Tribes and other Consulting Parties on the significance of resources documented through the PA process and will provide separate reporting documenting determinations of eligibility and effects at a later date. Compliance with the terms of the PA signifies compliance with Section 106 of the NHPA for the Project.

March 2022 ICF and HNTB. 2022b. *FINAL XpressWest High-Speed Passenger Train Project Historic Built Environment Technical Report: Nevada*. Prepared for FRA. March 2022.

³⁰ The proposed modified Project footprint at the Sloan VMF/UPRR connection, Cemex connection, and Ivanpah substation were not included in the APE. However, the footprint associated with these modifications are being evaluated and addressed pursuant to the requirements outlined in the PA.

California

In March of 2022, analysts conducted a Class III cultural resources inventory of the Project APE in California as identified in the September 2020 Reevaluation. Descriptions and locations of these resources appear in the Archaeological Inventory Report for California (ICF and Dudek 2022; Barton and Hale 2022a). Determinations of NRHP eligibility and finding of effect are provided separately in the Archaeological Finding of Eligibility and Effect for California (Hale and Barton 2022a).

The Class III inventory of the current Project APE-ADI (which included records search, intensive pedestrian survey, subsurface testing, and Tribal consultation) resulted in the identification of 142 archaeological cultural resources. Of these, 23 (4 archaeological districts, 14 sites within the archaeological districts, and 5 sites unaffiliated with archaeological districts) have been determined eligible for listing on the NRHP and therefore considered historic properties.

The Class III inventory of the APE-AII (which included records search and Tribal consultation but not field inspection) resulted in identification of 330 archaeological cultural resources. One archaeological district in the APE-AII was determined eligible for listing on the NRHP and all other archaeological cultural resources in the Project APE-AII were assumed eligible for listing on the NRHP for the purposes of this undertaking only. All assumed eligible archaeological cultural resources in the APE-AII will be avoided. The California State Historic Preservation Officer (CA SHPO) concurred with some of the NRHP eligibility determinations for the archaeological cultural resources in California on December 20, 2022 and did not object with the remaining NRHP eligibility determinations on February 14, 2023.³¹

The DesertXpress EIS and September 2020 Reevaluation outlined the process for Section 106 compliance first through the 2011 PA, and then through FRA's planned efforts to continue to advance the Section 106 compliance process through consultation and identification, evaluation, and assessment of effects efforts for the September 2020 Reevaluation. Subsequently, full historic property inventories have been completed for the APE-ADI and APE-AII, including an assessment of effects, and treatment measures for avoidance and mitigation of adverse effects, as documented in the 2023 PA and associated Historic Properties Treatment Plan (HPTP). The PA and HPTP also provide for treatment of inadvertent discoveries.

Nevada

In March of 2022, analysts conducted a Class III cultural resources inventory of the Project APE in Nevada as identified in the September 2020 Reevaluation (which does not include the proposed Sloan VMF – see Section 5.7). Descriptions and locations of these resources appear in the Archaeological Inventory Report for Nevada (Hale et al. 2022; Barton and Hale 2022b). Determinations of NRHP eligibility and finding of effect are provided separately in the Archaeological Finding of Eligibility and Effect for California (Hale and Barton 2022b).

The Class III inventory of the current Project APE-ADI (which included records search, intensive pedestrian survey, subsurface testing, and Tribal consultation) resulted in the identification of 115 archaeological cultural resources. Of these, 4 archaeological sites have been determined eligible for listing on the NRHP and therefore considered historic properties.

The Class III inventory of the APE-AII (which included records search and Tribal consultation but not field inspection) resulted in identification of 99 archaeological cultural resources. All resources in the Project

³¹ California SHPO. 2022 and 2023. *Letters to Melissa Ivie, Deputy Federal Preservation Officer, Federal Railroad Administration.*

APE-All were assumed eligible for listing on the NRHP for the purposes of this undertaking only and will be avoided. The Nevada State Historic Preservation Officer (NV SHPO) concurred with the NRHP eligibility determinations for the archaeological cultural resources in Nevada on August 22, 2022.³²

The DesertXpress EIS and September 2020 Reevaluation outlined the process for Section 106 compliance first through the 2011 PA, and then through FRA's planned efforts to continue to advance the Section 106 compliance process through consultation and identification, evaluation, and assessment of effects efforts for the September 2020 Reevaluation. Subsequently, full historic property inventories have been completed for the APE-ADI and APE-All, including an assessment of effects, and treatment measures for avoidance and mitigation of adverse effects, as documented in the 2023 PA and associated HPTP. The PA and HPTP also provide for treatment of inadvertent discoveries.

HISTORIC BUILT RESOURCES

California

Analysts identified 794 built environment resources located within the APE in California. Two built environment resources are considered NRHP eligible, and two are exempt from the requirements of Section 106. Analysts surveyed the remaining built environment resources within the APE that required evaluation for NRHP eligibility, of which 765 were newly identified as part of this survey. Analysts evaluated and/or updated records for these built environment resources, and FRA determined that they do not meet the minimum significance or integrity to be considered eligible for NRHP listing and are, therefore, not considered historic properties for the purposes of this undertaking. The CA SHPO concurred with this finding on February 3, 2022.³³

As stated above, two built environment resources within the APE were previously evaluated and determined eligible for NRHP listing with SHPO concurrence: the SCE's Boulder Dam–San Bernardino Transmission Line ; and LADWP's Boulder Dam–Los Angeles Transmission Lines: Boulder Lines 1, 2, and 3. Analysts surveyed the portions of these properties within the APE and concluded that two historic towers and associated transmission line of the Boulder Dam–San Bernardino Transmission Line within the APE approximately 6.5 miles southwest of Primm contribute to the property's significance. Analysts concluded that four other segments approximately 16 miles northeast of Baker, approximately 8.5 miles northeast of Baker, 31 miles northeast of Yermo, and approximately 18 miles northeast of Yermo retain historic integrity and continue to convey the property's significance. Additionally, segments of the Boulder Dam–Los Angeles Transmission Lines crossing the APE approximately 4.5 miles northeast of Yermo and 8.5 miles northeast of Victorville retain historic integrity and continue to convey the property's significance. The portions of these properties within the APE are considered eligible for the NRHP (ICF and HNTB 2022a). The CA SHPO concurred with this finding on February 3, 2022.³⁹

The DesertXpress EIS and September 2020 Reevaluation outlined the process for Section 106 compliance first through the 2011 PA, and then through FRA's planned efforts to continue to advance the Section 106 compliance process through consultation and identification, evaluation, and assessment of effects efforts for the September 2020 Reevaluation. Subsequently, full historic property inventories have been completed for the APE-ADI and APE-All, including an assessment of effects, and treatment measures for avoidance and mitigation of adverse effects, as documented in the 2023 PA and associated

³² Nevada SHPO. 2022. *Letter to Amanda Murphy, Acting Federal Preservation Officer, Federal Railroad Administration.*

³³ California SHPO. 2022. *Letter to Katherine Zeringue, Federal Preservation Officer, Federal Railroad Administration.*

Historic Properties Treatment Plan (HPTP). The PA and HPTP also provide for treatment of inadvertent discoveries.

Nevada

In Nevada, analysts identified a total of 43 built environment resources located within the APE. Eleven of these built environment resources are exempt from the requirements of Section 106 (the I-15 freeway and ten I-15 freeway bridges), and four were previously determined to be NRHP eligible. FRA has determined that these 4 built environment historic properties remain eligible for listing in the NRHP within the APE. One built environment resource, the Old Spanish Trail/Mormon Road, is listed on the NRHP (outside the Project area and on a separate trail alignment than this one), and FRA has determined that none of the segments of this linear resource within the APE are eligible for listing in the NRHP.³⁴ Additionally, one segment of the Arrowhead Trail remains unevaluated for this undertaking. It is assumed NRHP eligible for the purposes of this undertaking. The segment would not be impacted. The remaining (newly-identified) 27 built environment resources within the APE in Nevada required evaluation for NRHP eligibility. After evaluating or updating documentation of these properties, FRA determined that none of the remaining properties within the APE were eligible for listing in the NRHP (ICF and HNTB 2022b). The NV SHPO concurred with FRA's findings on December 6, 2021.³⁵

The four eligible properties within the APE that were previously recorded and determined eligible for NRHP listing with SHPO concurrence include: the Jean Underpass and LADWP's Boulder Dam–Los Angeles Transmission Lines, Boulder Line 1, Boulder Dam Line 2, and Boulder Line 3. Architectural historians resurveyed the Jean Underpass and the segments of the Boulder Dam–Los Angeles Transmission Lines within the APE north of Primm. FRA has determined that the Jean Underpass and the segments of Boulder Lines 1, 2, and 3 within the APE retain historic integrity and continue to convey the properties' significance but given the lack of physical evidence in the APE, the Jean Underpass and the segments of Boulder Dam Lines 1, 2, and 3 within the APE are considered eligible for NRHP listing and the unevaluated segment of the Arrowhead Trail within the APE will be treated as NRHP eligible for the purposes of this undertaking, only.

Project construction would directly impact a portion of the Project area, which is referred to as the APE-ADI. Damage, displacement, or removal of artifacts within the APE-ADI is considered an impact. The impact area (the APE-ADI) is small relative to the overall APE and the Project area. The Project modifications would not result in substantial changes in the evaluation of impacts to archaeological or historic built environment resources from construction of the Project as described in the 2011 DesertXpress EIS or the September 2020 Reevaluation. The execution of a PA accounts for the archaeological impacts and treatment for future changes to the APE and project design modifications as well as the inadvertent discovery of buried cultural deposits. The DesertXpress EIS and September 2020 Reevaluation outlined the process for Section 106 compliance first through the 2011 PA, and then through FRA's planned efforts to continue to advance the Section 106 compliance process through consultation and identification, evaluation, and assessment effects efforts for the September 2020 Reevaluation. Subsequently, full historic property inventories have been completed for the APE-ADI and APE-All, including an assessment of effects, and treatment measures for avoidance and mitigation of

³⁴ McBride, Terri. 2001. *National Register of Historic Places Registration Form: Old Spanish Trail/Mormon Road Historic District*. U.S. Department of the Interior, National Park Service. Accessed: May 2022.

³⁵ Nevada SHPO. 2021. *Letter to Katherine Zeringue, Federal Preservation Officer, Federal Railroad Administration*.

adverse effects, as documented in the 2023 PA and associated Historic Properties Treatment Plan (HPTP). The PA and HPTP also provide for treatment of inadvertent discoveries.

4.7.3 MITIGATION MEASURES

The following mitigation measures established in the DesertXpress EIS and revised in the September 2020 Reevaluation, as well as execution of the PA for the Project and conformance with its terms would avoid, minimize, or resolve adverse effects to cultural resources:

- Mitigation Measure CR-1: Avoidance of Archaeological Resources
- Mitigation Measure CR-2: Evaluation
- Mitigation Measure CR-3: Treatment
- Mitigation Measure CR-4: Monitoring
- Mitigation Measure CR-5: Preconstruction Meeting and Worker Awareness Training
- Mitigation Measure CR-6: Human Remains and Stop Work Requirement
- Mitigation Measure CR-7: Annual Reporting
- Mitigation Measure CR-8: Quarterly Reporting

4.8 HYDROLOGY AND WATER QUALITY

This section evaluates whether the Project modifications would result in substantial changes to the evaluation of effects to hydrology and water quality discussed in the DesertXpress EIS and September 2020 Reevaluation. As previously established in the September 2020 Reevaluation, the September 2020 Project modifications did not result in substantial changes to the evaluation of hydrology and water quality disclosed in the DesertXpress EIS.

The modified Project rail alignment follows the I-15 freeway corridor and generally encounters the same regions evaluated in the September 2020 Reevaluation and DesertXpress EIS. Therefore, the DesertXpress EIS discussions of affected environment remain applicable to the modified Project footprint.

4.8.1 REGULATORY UPDATES

No updates to state or local regulation that pertain to the modified Project's effects on hydrology and water quality have occurred since the September 2020 Reevaluation. Additionally, no changes in the physical environment have occurred since the September 2020 Reevaluation that would result in substantial changes to the evaluation of hydrology and water quality for the modified Project.

The environmental analysis conducted in the DesertXpress EIS, the September 2020 Reevaluation, and this Reevaluation evaluates effects of hydrology, water quality, drainage patterns, and stormwater runoff to aquatic resources throughout the Project area regardless of WOTUS jurisdiction. While the definition of WOTUS has changed since publication of the DesertXpress EIS, including the EPA and USACE's 2015 Rule, 2020 Rule, and 2021 Rule, these regulatory updates do not affect the evaluation of aquatic feature affected by the project as the evaluation is not specific to WOTUS and considers all aquatic resources within the project area.

4.8.2 EFFECTS ANALYSIS

AQUATIC FEATURES WITHIN THE MODIFIED FOOTPRINT

The DesertXpress EIS and September 2020 Reevaluation identified aquatic resources that would be affected by implementation of the Project. The Mojave River and its adjacent wetlands are the only Waters of the United States (WOTUS) in proximity to the modified Project area. Segments of the Mojave River were delineated south of Barstow and south of Basin Road, but no wetlands were delineated in association of these river segments. The only wetlands delineated are associated with the Mojave River crossing at Victorville, which is south of the Victor Valley Station. The various desert ephemeral stream channels and man-made ditches the modified Project crosses in California are non-jurisdictional waters. For the Nevada segments of the modified Project area, the USACE has verified that all delineated aquatic resource features in the Jean, Roach and Ivanpah Dry Lake watersheds are isolated non-jurisdictional waters. The resources are non-jurisdictional either because (1) the delineated features are isolated waters in closed basin watersheds that have no significant nexus to interstate commerce or Traditional Navigable Waters, or (2) the delineated waters are ephemeral stream channels that were exempt from regulation.³⁶

Thus, the Project modifications would not result in substantial changes in the evaluation of effects to aquatic resources of the DesertXpress EIS or September 2020 Reevaluation.

WATER QUALITY

The DesertXpress EIS and September 2020 Reevaluation identified that construction-period water quality effects would result from increased erosion and sedimentation during grading and excavation, as well as from accidental spills or improper storage of hazardous materials. Additionally, operational water quality effects would result from polluted stormwater runoff generated at the stations and maintenance facilities.

The modified Project would not change the September 2020 Reevaluation conclusions regarding water quality effects because the modifications to the rail alignment and ancillary features, and construction and operations activities would occur within a similar area and scope and would not result in new significant effects to water quality. The DesertXpress EIS and September 2020 Reevaluation concluded that Mitigation Measures HYD-1 through HYD-4 would minimize adverse effects to hydrological resources during construction and operation. These mitigation measures would still apply to the modified Project. Therefore, the modified Project would not result in substantial changes in the evaluation of water quality impacts of the DesertXpress EIS or September 2020 Reevaluation.

³⁶ At the time of the analysis for the September 2020 Reevaluation the 2020 Navigable Waters Rule was in effect, which was later vacated. On September 3, 2021, EPA and USACE announced they have halted implementation of the 2020 Rule and will interpret the “waters of the United States” consistent with the pre-2015 regulatory regime. On March 20, 2023, the 2020 Rule was replaced by the 2023 Navigable Waters Rule. This analysis was conducted in October 2022, consistent with the pre-2015 regulatory regime and in coordination with USACE.

ALTERATION OF EXISTING DRAINAGE PATTERNS

Construction

The DesertXpress EIS determined that Project construction would potentially alter drainage patterns through the exposure of soils susceptible to erosion during earthmoving activities. The September 2020 Reevaluation determined the September 2020 modifications would require a slightly shorter construction period and less earthmoving activity since the overall Project footprint would be reduced.

The modified Project includes an additional 202 TCAs, within the Caltrans/NDOT ROW, adding approximately 1,492 acres of temporary footprint since the September 2020 Reevaluation. As the project design has progressed Brightline has sought input from contractors who have identified the need for additional temporary construction areas for material laydown and access.³⁷ These newly considered TCAs would be located within Caltrans/NDOT ROW along the modified alignment, which would follow the I-15 freeway corridor as previously evaluated in the DesertXpress EIS and September 2020 Reevaluation. Mitigation Measures HYD-2 and HYD-9 would still be applied to reduce impacts on existing drainage patterns during construction. Therefore, the Project modifications would not result in substantial changes in the evaluation of alteration to existing drainage patterns from construction compared with the DesertXpress EIS or September 2020 Reevaluation.

Operation

The DesertXpress EIS determined that the alignment and ancillary features, including proposed paralleling sites, would cross numerous ephemeral hydrological features between Apple Valley and Las Vegas. The modified alignment would not change the September 2020 Reevaluation conclusions regarding the alteration of drainage patterns because the modified alignment would still follow the I-15 freeway corridor, relocating the alignment in Segment 1 and Segment 5 from being adjacent to the I-15 freeway into the I-15 freeway median. New and modified ancillary features, including highway ramp realignments, emergency crossovers, roadwork, and culverts would be located within the I-15 freeway ROW. No modifications to the Victor Valley Station site, Warm Springs Station site, or paralleling sites are proposed. Mitigation Measure HYD-5 would still be applied to reduce impacts from the modified Project on existing drainage patterns. The Project modifications would not result in substantial changes in the evaluation of alteration to existing drainage patterns from operations compared with the DesertXpress EIS or September 2020 Reevaluation.

FLOOD FLOW IMPEDIMENT

The DesertXpress EIS determined that portions of alignment and ancillary facilities would traverse areas with a 1 percent annual chance of experiencing flooding, which could impede or redirect flood flows. The September 2020 Reevaluation established most of the 1 percent annual chance floodplain boundaries did not change since publication of the DesertXpress EIS, although the Warm Springs Station was found to overlap with a 1 percent annual chance floodplain that was not previously evaluated.

³⁷ Not including temporary footprint required for construction of the Sloan VMF. The Sloan VMF is discussed in Section 5.0.

Since the September 2020 Reevaluation, the 1 percent annual chance floodplain boundaries have not changed.^{38, 39} Modified mainline ancillary features located along the alignment, including highway ramp realignments, emergency crossovers, roadwork, and culverts, would encounter previously evaluated 1 percent annual chance floodplains in proximity to the I-15 freeway. The Cemex rail connection south of Victor Valley Station would not encounter designated 1 percent annual chance flood plains. Mitigation Measures HYD-6 and HYD-7 would still be required to minimize impacts from floodplains. The Project modifications would not result in substantial changes in the evaluation of floodplains of the DesertXpress EIS or September 2020 Reevaluation.

ADDITIONAL SOURCES OF STORMWATER RUNOFF

Construction

The DesertXpress EIS determined that Project construction could introduce new sources of polluted stormwater runoff through the release of construction-related chemicals, especially from TCAs. The September 2020 Reevaluation established the reduction of the overall 2020 Project footprint compared to the DesertXpress EIS Project footprint would allow for a slightly shorter construction period and a reduction in the use of construction-related chemicals. Reduction of the intensity of the construction activities during the period would reduce the potential for chemical releases by shortening the amount and time chemicals would be stored and used within the construction footprint, resulting in a beneficial effect.

The overall modified Project footprint would not significantly change from the footprint evaluated in the September 2020 Reevaluation, and thus the intensity of the construction activities, which could affect the potential for chemical releases and the amount and time chemicals would be stored and used within the construction footprint, would not substantially differ. Mitigation Measures HYD-2, HYD-3, and HYD-4 would still be applied to reduce impacts from chemical releases during construction. The Project modifications would not result in substantial changes in the evaluation of stormwater runoff during construction, compared with the DesertXpress EIS or September 2020 Reevaluation.

Operation

The DesertXpress EIS determined that new impervious surfaces at the station and maintenance facilities could produce increased stormwater runoff. The modified Project would not change the September 2020 Reevaluation's conclusions regarding polluted runoff because the quantity of impervious surface areas included in the modified Project would not substantially differ from the surface areas evaluated in the September 2020 Reevaluation or DesertXpress EIS. Therefore, the Project modifications would not result in substantial changes in the evaluation of stormwater runoff during operations, compared with the DesertXpress EIS or September 2020 Reevaluation.

³⁸ California Department of Water Resources. 2022. *Best Available Map*. <https://gis.bam.water.ca.gov/bam/>. Accessed: April 2022.

³⁹ Federal Emergency Management Agency. 2021. *FEMA Flood Map Service Center*. <https://msc.fema.gov/portal/home>. Accessed: April 2022.

REDUCTION IN GROUNDWATER AVAILABILITY

Mitigation Measure HYD-10, developed in the DesertXpress EIS and revised in the September 2020 Reevaluation, would still apply to the Project, which would require water supply for construction, operation, and maintenance activities be obtained from existing water purveyors instead of surface or groundwater resources. Therefore, the Project modifications would not result in substantial changes in the evaluation of groundwater availability of the DesertXpress EIS or September 2020 Reevaluation.

WATERS OF THE UNITED STATES

The DesertXpress EIS determined that the alignment would cross numerous ephemeral hydrological features between Apple Valley and Las Vegas. The Mojave River and its adjacent wetlands are the only WOTUS in proximity to the modified Project. Segments of the Mojave River were delineated south of Barstow and south of Basin Road, but no wetlands were delineated in association of these river segments. The only wetlands delineated are associated with the Mojave River crossing at Victorville, which is south of the Victor Valley Station. The various desert ephemeral stream channels and man-made ditches the modified Project crosses in California are non-jurisdiction waters not currently subject to the USACE's permitting regulations. There are no jurisdictional waters located in Nevada that would be affected by the Project.

Mitigation Measure HYD-5 would still apply to reduce hydraulic impacts where the modified Project alignment and ancillary facilities encounter ephemeral drainages. Therefore, the Project modifications would not result in substantial changes in the evaluation of WOTUS impacts of the DesertXpress EIS or September 2020 Reevaluation.

4.8.3 MITIGATION MEASURES

The following mitigation measures established in the DesertXpress EIS and revised in the September 2020 Reevaluation would avoid adverse effects to hydrology and water quality:

- Mitigation Measure HYD-1: Incorporate Site-Specific Water Treatment Devices
- Mitigation Measure HYD-2: Implement Construction-Related Best Management Practices
- Mitigation Measure HYD-3: Comply with the National Pollutant Discharge Elimination System (NPDES) Construction General Permit
- Mitigation Measure HYD-4: Implement Spill Prevention, Control, and Countermeasure Plan
- Mitigation Measure HYD-5: Proper Design of Drainage Systems
- Mitigation Measure HYD-6: Reduce Encroachment into the 100-Year Floodplain.
- Mitigation Measure HYD-7: No Storage of Construction Equipment or Materials within the 100-Year Floodplain
- Mitigation Measure HYD-9: Minimize Impacts of Temporary Construction Areas on Water Resources
- Mitigation Measure HYD-10: Minimize Impacts on Water Availability
- Mitigation Measure BIO-1: Conduct Mandatory Environmental Awareness Training Program
- Mitigation Measure BIO-3: Conduct Construction Monitoring
- Mitigation Measure BIO-5: Confine Construction Equipment to a Designated Work Zone (Including Access Roads) at Each Project Site
- Mitigation Measure BIO-19: Construct Exclusion Fencing, Culverts to Sustain Hydrologic Function, and Provide Wildlife Crossings

4.9 GEOLOGY AND SOILS

This section evaluates whether the Project modifications would result in substantial changes to the evaluation of effects to geology and soils discussed in the DesertXpress EIS and September 2020 Reevaluation. As previously established in the September 2020 Reevaluation, the September 2020 Project modifications did not result in substantial changes to the evaluation of geology and soils disclosed in the DesertXpress EIS.

4.9.1 REGULATORY UPDATES

No updates to Federal, state, or local regulations governing geological hazards have occurred since the September 2020 Reevaluation that would pertain to the Project. Additionally, no changes in the physical environment have occurred since the September 2020 Reevaluation that would result in substantial changes to the evaluation of geological hazards for the modified Project.

4.9.2 EFFECTS ANALYSIS

SURFACE FAULT RUPTURE AND GROUND SHAKING

The DesertXpress EIS determined the hazards of fault rupture and ground shaking hazards depend on the Project location relative to active faults. The modified Project would not change the conclusions regarding surface fault rupture and ground shaking because the Project modifications do not substantially change the location of the Project in relation to active faults analyzed in the DesertXpress EIS. No new faults have been identified in the Project region. Mitigation Measures GEO-1 and GEO-2 would still apply to reduce impacts from these seismic hazards. Thus, the Project modifications would not result in substantial changes in the evaluation of surface fault rupture and ground shaking impacts of the DesertXpress EIS or September 2020 Reevaluation.

LIQUEFACTION, SETTLEMENT, CORROSIVE SOILS, EXPANSIVE SOILS, LANDSLIDES, AND SHALLOW GROUNDWATER

The DesertXpress EIS determined that soil hazard potential depends on soil composition and depth to groundwater, which can affect the foundation and design of overlying structures. Soil moisture content is the chief factor associated with liquefaction, corrosive soils, and expansive soil risks, and can exacerbate hazards related to settlement and landslides. Thus, shallow groundwater may increase soil hazard potential.

The modified Project includes new footprint for highway ramp realignments and modifications, emergency crossovers, TCAs, Cemex connection, and modifications to portions of the alignment along Segments 1 and 5. However, the modified Project would not change the conclusions regarding soil hazards because these areas of new footprint would be near areas previously analyzed in the DesertXpress EIS and September 2020 Reevaluation, encountering similar soil and groundwater conditions. Additionally, Mitigation Measures GEO-3, GEO-5, GEO-6, GEO-7, and GEO-10 would still apply to address the need for site-specific evaluation of soil and groundwater conditions. Thus, the Project modifications would not result in substantial changes in the evaluation of liquefaction, settlement, corrosive soil, expansive soil, landslide, or shallow groundwater impacts of the DesertXpress EIS or September 2020 Reevaluation.

DAM INUNDATION

The DesertXpress EIS identified the Mojave River and surrounding lands as subject to potential inundation from dam failure at Lake Arrowhead and Silverado Lake. These waterbodies are located upstream of the Project. Current dam inundation maps do not exist for these water bodies. However, the Federal Emergency Management Agency's flood insurance maps for the Project vicinity provide mapping of potential flooding in the Project region. The modified Project would not change the September 2020 Reevaluation conclusions regarding dam inundation because the risk of flooding along the Mojave River and the rail alignment's location in relation to flood-prone areas has not changed since the September 2020 Reevaluation.⁴⁰ The revised alignment and ancillary facilities would still encounter the Lake Arrowhead and Silverado Lake dam inundation areas. The Cemex rail connection would not encounter areas prone to flooding. Mitigation Measure GEO-4 would still be applied in the areas identified as susceptible to dam inundation. Thus, the Project modifications would not result in substantial changes in the evaluation of dam inundation impacts of the DesertXpress EIS or September 2020 Reevaluation.

GROUND FISSURES

The Project could encounter unmapped, unidentified, or newly formed ground fissures. The DesertXpress EIS identified the Las Vegas area as susceptible to ground fissures. The Cemex rail connection would add approximately 2 miles of new track along the I-15 freeway. However, Mitigation Measure GEO-12 would still be applied to reduce the impact of ground fissures, and the Project modifications would not result in substantial changes in the evaluation of ground fissure impacts of the DesertXpress EIS or September 2020 Reevaluation.

CALICHE/HARD ROCK EXCAVATION

Sediments of certain ages, such as quaternary deposits in southern Nevada, have the potential to form caliche layers. Hard rock layers occur across the Project vicinity and footprint. The DesertXpress EIS identified areas of hard rock or caliche along the entire corridor. The modified Project would not change the DesertXpress EIS or September 2020 Reevaluation conclusions regarding caliche and hard rock excavation because the Project would remain of a similar scope and geographic location. Thus, the Project modifications would not result in substantial changes in the evaluation of caliche and hard rock excavation impacts of the DesertXpress EIS or September 2020 Reevaluation.

4.9.3 MITIGATION MEASURES

The following mitigation measures established in the DesertXpress EIS and revised in the September 2020 Reevaluation would avoid adverse geology and soils effects.

- Mitigation Measure GEO-1: Surface Fault Rupture
- Mitigation Measure GEO-2: Ground Shaking
- Mitigation Measure GEO-3: Liquefaction
- Mitigation Measure GEO-4: Dam Inundation
- Mitigation Measure GEO-5: Settlement
- Mitigation Measure GEO-6: Corrosive Soils

⁴⁰ California Department of Water Resources. 2022. *Best Available Map*. Available: <https://gis.bam.water.ca.gov/bam/>. Accessed: April 2022.

- Mitigation Measure GEO-7: Expansive Soils
- Mitigation Measure GEO-8: Landslides
- Mitigation Measure GEO-9: Caliche/Hard Rock Excavation
- Mitigation Measure GEO-10: Shallow Groundwater
- Mitigation Measure GEO-12: Ground Fissures

4.10 PALEONTOLOGICAL RESOURCES

This section evaluates whether the Project modifications would result in substantial changes to the evaluation of effects to paleontological resources (e.g. fossils) discussed in the DesertXpress EIS and September 2020 Reevaluation. As previously established in the September 2020 Reevaluation, the September 2020 Project modifications did not result in substantial changes to the evaluation of paleontological impacts disclosed in the DesertXpress EIS.

4.10.1 REGULATORY UPDATES

No updates to Federal, state, or local regulations governing paleontological resources have occurred since the September 2020 Reevaluation that would pertain to the Project. Additionally, no changes in the physical environment have occurred since the September 2020 Reevaluation that would result in substantial changes to the evaluation of paleontological resources for the modified Project.

4.10.2 EFFECTS ANALYSIS

This paleontological resource evaluation focuses on Project modifications that would result in new or previously unanalyzed footprint. The DesertXpress EIS concluded that large areas of Project footprint, including the entirety of the rail alignment, would encounter areas of high paleontological sensitivity. The modified Project would only encounter geologic units that were previously evaluated in the DesertXpress EIS. Therefore, the Project modifications would result in similar paleontological resource effects.

Although several types of ancillary features would be modified and relocated, the scale and severity of impacts from these facilities would be minor. While the Cemex rail connection, modified emergency crossovers, highway ramp realignments, and TCAs would be constructed within footprint areas not considered in the DesertXpress EIS or September 2020 Reevaluation, these new areas would be minimal and would be constructed over previously evaluated geologic units.

The entire rail alignment would still encounter areas of high paleontological sensitivity. However, as the modified alignment would be constructed in the same general location as the alignment analyzed in the DesertXpress EIS and September 2020 Reevaluation, it would not substantially increase the Project footprint underlain by areas of high paleontological sensitivity. Mitigation measures CR-7 through CR-13 would still apply to minimize impacts on paleontological resources from the Project. Thus, the Project modifications would not result in substantial changes in the evaluation of paleontological impacts of the DesertXpress EIS or September 2020 Reevaluation.

4.10.3 MITIGATION MEASURES

The following mitigation measures established in the DesertXpress EIS and revised in the September 2020 Reevaluation would avoid adverse effects to paleontological resources:

- Mitigation Measure CR-7: Annual Reporting

- Mitigation Measure CR-8: Quarterly Reporting
- Mitigation Measure CR-9: Further Evaluation of Geologic Units
- Mitigation Measure CR-10: Preconstruction Meeting and Worker Awareness Training
- Mitigation Measure CR-11: Paleontological Monitoring
- Mitigation Measure CR-12: Stop Work Requirement
- Mitigation Measure CR-13: Fossil Recovery and Curation

4.11 HAZARDOUS MATERIALS

This section evaluates whether the Project modifications would result in substantial changes to the evaluation of effects to hazardous materials discussed in the DesertXpress EIS and September 2020 Reevaluation. As previously established in the September 2020 Reevaluation, the September 2020 Project modifications did not result in substantial changes to the hazardous materials impacts disclosed in the DesertXpress EIS.

4.11.1 REGULATORY UPDATES

No Federal regulatory updates pertaining to hazardous materials have occurred since the September 2020 Reevaluation. No changes in the physical environment have occurred since the September 2020 Reevaluation that would result in substantial changes to the evaluation of hazardous materials for the modified Project. State and local agencies that regulate hazardous materials may have updated regulations regarding hazardous material management. Mitigation measures identified in the DesertXpress EIS and updated in the September 2020 Reevaluation require the project to comply with State and local regulations pertaining to hazardous materials including contaminated soil and materials handling. As such these State and local regulatory updates would not result in substantial changes in the evaluation of hazardous materials impacts disclosed in the September 2020 Reevaluation. Effects Analysis

SITES OF ENVIRONMENTAL CONCERN

Sites of environmental concern include hazardous material release sites, railroad corridors, and freeway corridors that could contain contaminated soil or groundwater. The DesertXpress EIS determined that construction near sites of environmental concern could expose or mobilize in-situ contamination.

The modified rail alignment would be within the I-15 freeway ROW in the median or immediately adjacent to the roadway travel lanes. As originally evaluated in the DesertXpress EIS, ancillary features, including roadway improvements, highway ramp realignments, emergency crossovers, and utility corridors would be located along existing roadways and utility corridors. Existing transportation and utility corridors through rural and urban communities along the I-15 freeway were previously evaluated for the potential to encounter hazardous materials.

The modified mainline ancillary features, including the Cemex rail connection, may encounter new sites of environmental concern. However, the modified Project footprint has not changed substantially, and therefore such sites would be unlikely to result in new types or higher quantities of hazardous material effects (such as the exposure or mobilization of in-situ soil or groundwater contamination) from those evaluated in the DesertXpress EIS or September 2020 Reevaluation. The DesertXpress EIS also developed Mitigation Measures HAZ-2 and HAZ-4 to reduce potential hazardous material impacts associated with contamination encountered during Project construction, which would still apply to the

Project. Thus, the Project modifications would not result in substantial changes in the evaluation of sites of environmental concern impacts of the DesertXpress EIS or September 2020 Reevaluation.

UNIDENTIFIED HAZARDOUS MATERIALS

The DesertXpress EIS determined that the Project could encounter previously unidentified hazardous materials during construction. The modified Project would not change the conclusions regarding unidentified hazardous materials because Project modifications would be constructed in similar locations as analyzed in the DesertXpress EIS and September 2020 Reevaluation. Additionally, since the modified Project footprint has not changed substantially, the scale, location, and severity of impacts from unidentified hazardous materials would be similar to those previously identified in the DesertXpress EIS and September 2020 Reevaluation. Furthermore, Mitigation Measures HAZ-3 and HAZ-4 would still be applied to address risks associated with unidentified hazardous materials. Thus, the Project modifications would not result in substantial changes in the evaluation of unidentified hazardous material impacts of the DesertXpress EIS or September 2020 Reevaluation.

BUILDINGS CONSTRUCTED BEFORE 1980

The DesertXpress EIS concluded that Project construction could require the demolition of structures built before 1980, which could mobilize hazardous materials such as lead-based paint and asbestos-containing materials. Project modifications would reduce this potential impact since the modified rail alignment would be located predominantly within the vacant I-15 freeway median or ROW, which would reduce the need for demolition. However, demolition of infrastructure, including bridges and elements associated with roadway reconstruction areas, would be required throughout the modified Project footprint. Mitigation Measure HAZ-1 and HAZ-4 would still be applied to reduce potential impacts from this demolition. Thus, the Project modifications would not result in substantial changes in the evaluation of impacts from buildings constructed before 1980 of the DesertXpress EIS or September 2020 Reevaluation.

NATURALLY OCCURRING ASBESTOS AND ERIONITE

Naturally occurring asbestos (NOA) and erionite are naturally-occurring hazardous materials with the potential to occur in the Project vicinity that were not considered in the DesertXpress EIS but were evaluated in the September 2020 Reevaluation. NDOT informed FRA that the presence of NOA could be found in certain rock types present in Nevada, given NDOT's knowledge of projects that have occurred since the DesertXpress EIS.

The September 2020 Reevaluation assessed two sections of the September 2020 Project alignment overlaying rock types with potential to contain NOA and erionite. The first section was at the south end of Ivanpah Valley south of Jean, which exhibited a low-to-moderate risk for NOA, and the second section was located approximately three miles north of Jean, which exhibits a moderate-to-high risk for erionite. Based on these findings, NOA and erionite were determined to be unlikely to occur within the September 2020 Project footprint. These findings would remain valid for the modified Project as the modified Project alignment would still be located in these areas. Thus, the Project modifications would not result in substantial changes in the evaluation of impacts from naturally occurring asbestos and erionite of the September 2020 Reevaluation.

4.11.2 MITIGATION MEASURES

The following mitigation measures identified in the DesertXpress EIS would avoid adverse hazardous material effects:

- Mitigation Measure HAZ-1: Structures Built Prior to 1980
- Mitigation Measure HAZ-2: Contaminated Soil and/or Groundwater
- Mitigation Measure HAZ-3: Previously Unidentified Hazardous Materials
- Mitigation Measure HAZ-4: Hazardous Material Disposal
- Mitigation Measure HAZ-5: Operationally Generated Hazardous Materials

4.12 AIR QUALITY AND GLOBAL CLIMATE CHANGE

This section evaluates whether the Project modifications would result in substantial changes to the evaluation of effects on air quality and global climate change discussed in the DesertXpress EIS and September 2020 Reevaluation. As previously established in the September 2020 Reevaluation, the September 2020 Project modifications resulted in fewer criteria pollutants and greenhouse gas (GHG) emissions during construction and operation compared to the levels of emissions identified in the DesertXpress EIS due to reductions in proposed construction activities and the overall Project footprint.

The modified Project would still be in both the Mojave Desert Air Basin (MDAB) in California and the Clark County Area in Nevada. The characterization of these two air basins is consistent with the September 2020 Reevaluation, except for slight changes to basin ambient air quality. However, the Federal attainment statuses for these two air basins have not changed. The MDAB and Clark County Area remain designated Federal Non-attainment for ozone, and the MDAB also remains designated non-attainment for respirable particulate matter (PM₁₀).⁴¹

4.12.1 REGULATORY UPDATES

No updates to Federal, California state, or local regulations that pertain to the modified Project's effects on air quality and global climate change have occurred since the September 2020 Reevaluation, except the passing of Nevada Senate Bill 448 in June 2021. This law advances the energy portfolio requirements for the state of Nevada, requiring utilities to forecast a path to achieve an 80 percent reduction in carbon dioxide emissions from 2005 levels by 2030, facilitating Nevada's goal to reach 100 percent renewable electricity generation by 2050.⁴² This regulatory update would not result in substantial changes in the evaluation of effects to air quality and global climate change disclosed in the September 2020 Reevaluation.

No changes in the physical environment have occurred since the September 2020 Reevaluation that would result in substantial changes to the evaluation of the modified Project's effects on air quality and global climate change.

⁴¹ United States Environmental Protection Agency. 2022. *Current Nonattainment Counties for all Criteria Pollutants*. <https://www3.epa.gov/airquality/greenbook/ancl.html>. Accessed April 2022.

⁴² Nevada Legislature. 2021. *SB448*. <https://www.leg.state.nv.us/App/NELIS/REL/81st2021/Bill/8201/Text>. Accessed April 2022.

4.12.2 EFFECTS ANALYSIS

CONSTRUCTION

The modified Project would not result in significant changes to the total rail alignment length or miles of elevated and at-grade track disclosed in the September 2020 Reevaluation since the alignment modifications would only involve relocating the rail alignment from being adjacent to the I-15 freeway to the I-15 freeway median at Segment 1 and Segment 5. The modified Project is still anticipated to take approximately three years to construct, and the level of construction effort and intensity needed to construct the modified Project would not change from those disclosed in the September 2020 Reevaluation. Compared to the Project evaluated in the DesertXpress EIS, there would still be substantial reductions in construction emissions due to reduced elevated alignment and the elimination of tunneling. The resulting reduced level of construction activity and intensity would result in fewer air pollutants and GHG emissions.

Emissions associated with the modified Project would be temporary and would cease when construction activities are complete. Since the emissions intensity of equipment and trucks varies by year and trends down over time due to fleet turnover (i.e., emission factors for construction equipment were higher in 2020 than current emissions expected in 2022), emissions from individual pieces of off-road equipment, passenger vehicles, and trucks is expected to be cleaner and emit fewer criteria pollutants and GHGs during construction of the modified Project. Additionally, continuous updates to federal and state plans, policies, regulations, and Eos are still being introduced that clarify new, or expand upon previous air quality and GHG emission reduction goals, such as Nevada Senate Bill 448 (see Section 4.12.1). The benefits of these regulations and policies to the emissions generated during modified Project construction would be realized throughout the construction period. Additionally, Mitigation Measures AQ-1, AQ-3, and AQ-5 would still apply to reduce construction air quality effects from the Project. Thus, the Project modifications would not result in substantial changes in construction-period air quality and GHG emission impacts evaluated in the DesertXpress EIS or September 2020 Reevaluation.

OPERATION

Energy Demand Emissions

As disclosed in the September 2020 Reevaluation, service would start with 25 round trips per day but would escalate to a maximum of 49 round trips per day by the modified Project buildout year in 2042. Based on the buildout level of train activity, annual electricity demand was evaluated to be approximately 162,753,500 kWh, and criteria pollutant and GHG emissions related to this level of electricity generation reduced when compared to the emissions evaluated in the DesertXpress EIS.

The anticipated annual electricity demand for the modified Project is not anticipated to change significantly from what was evaluated in the September 2020 Reevaluation, since the buildout level of operations and train activity would not differ substantially. Therefore, the Project modifications would not result in substantial changes in operational air quality or GHG emission impacts evaluated in the DesertXpress EIS or September 2020 Reevaluation.

Carbon Monoxide Concentrations

The September 2020 Reevaluation established carbon monoxide (CO) emissions factors and ambient background CO concentrations have decreased since the DesertXpress EIS assessment, and the modified Project would not result in operational CO hotspot formation conditions. Congestion at local

intersections surrounding the Victor Valley Station site and Warm Springs Station site were similar or below estimated congestion associated with the original Victorville and Las Vegas station locations. The modified Project does not include changes to the Victor Valley Station and Warm Springs Station footprints. Therefore, the Project modifications would not result in substantial changes in CO emission impacts evaluated in the DesertXpress EIS or September 2020 Reevaluation.

4.12.3 MITIGATION MEASURES

The DesertXpress EIS identified no operational mitigation measures, as potential impacts were demonstrated to be less than significant under the fully electric technology option. Given that operational impacts for the Project, as currently modified, would be similar to the impacts determined in the DesertXpress EIS, no mitigation measures would be applied during Project operation.

The following mitigation measures established in the DesertXpress EIS and revised in the September 2020 Reevaluation would avoid adverse air quality effects during construction:

- Mitigation Measure AQ-1: Fugitive Dust Control Plan during Construction to Meet MDAQMD Rule 403.2 Requirements
- Mitigation Measure AQ-3: Fugitive Dust Control Plan during Construction to Meet Clark County DES Requirements
- Mitigation Measure AQ-5: Utilize additional means to reduce construction period emissions of air pollutants.

4.13 NOISE AND VIBRATION

This section evaluates whether the Project modifications would result in substantial changes to the evaluation of effects to noise and vibration sensitive receptors discussed in the DesertXpress EIS and September 2020 Reevaluation. As previously established in the September 2020 Reevaluation, the September 2020 Project modifications did not result in substantial changes to the evaluation of noise and vibration impacts disclosed in the DesertXpress EIS.

4.13.1 REGULATORY UPDATES

No updates to Federal, state, or local regulation that pertain to the modified Project's effects on noise and vibration have occurred since the September 2020 Reevaluation. Additionally, no changes in the physical environment have occurred since the September 2020 Reevaluation that would result in substantial changes to the evaluation of noise and vibration for the modified Project.

4.13.2 EFFECTS ANALYSIS

CONSTRUCTION NOISE

The DesertXpress EIS evaluated 29 TCAs requiring 463 acres of temporary footprint located along the alignment between Victorville and Las Vegas. The Project evaluated in the September 2020 Reevaluation included a subset of the TCAs evaluated in the DesertXpress EIS as well as locations previously designated for autotransformers in the DesertXpress EIS, totaling 30 TCAs. The Project modifications would require an additional 202 TCAs located along the alignment, adding approximately 1,492 acres of temporary footprint and would be located primarily within existing Caltrans/NDOT ROW immediately adjacent to permanent facilities to be constructed in the I-15 freeway corridor. These newly considered TCAs would not result in new noise impacts as freeway traffic would continue to be the dominant noise

source. There are currently no sensitive receivers within the existing Caltrans/NDOT ROW, and thus the new TCAs added by the modified Project would not result in new moderate or severe noise effects on sensitive receivers. Additionally, construction techniques have not changed, and TCAs would be restored and vacated upon completion of construction. Mitigation Measure NV-10 would still apply to minimize construction noise effects from the Project to sensitive receivers. The Project modifications would not result in substantial changes in the evaluation of construction noise impacts of the DesertXpress EIS or September 2020 Reevaluation.

CONSTRUCTION VIBRATION

As described above, the Project modifications would result in new TCAs that were not previously evaluated. However, all newly considered TCAs would be located primarily within existing Caltrans/NDOT ROW immediately adjacent to permanent facilities to be constructed in the I-15 freeway corridor. As such, these newly considered TCAs would not result in new vibration impacts because construction techniques have not changed and there are currently no sensitive receivers within the existing Caltrans/NDOT ROW, and thus the new TCAs added by the modified Project would not result in new moderate or severe noise effects on sensitive receivers. Additionally, construction techniques have not changed, and TCAs would be restored and vacated upon completion of construction. Mitigation Measure NV-10 would still apply to minimize construction vibration effects from the Project to sensitive receivers. The Project modifications would not result in substantial changes in the evaluation of construction vibration impacts of the DesertXpress EIS or September 2020 Reevaluation.

HIGH-SPEED RAIL NOISE

The Project modifications would not result in additional moderate and severe noise effects at locations identified in the September 2020 Reevaluation. The Project modifications would relocate the rail alignment from the east side of the I-15 freeway into the I-15 freeway median for portions of Segments 1 and 5. The September 2020 Reevaluation did not identify any noise impacts within the I-15 freeway median, since there were no sensitive receivers at these locations. There are currently no sensitive receivers within the I-15 freeway median, and thus the relocation of the modified Project alignment into the I-15 freeway median would not result in new moderate or severe noise effects on sensitive receivers. Mitigation Measures NV-1, NV-3, and NV-4 would still apply to minimize noise effects from high-speed rail operations. The Project modifications would not result in substantial changes in the evaluation of operational noise impacts of the DesertXpress EIS or September 2020 Reevaluation.

TRAFFIC NOISE

There are no locations where the change in traffic conditions resulting from the Project modifications would result in potential traffic noise impacts, above the levels described in the September 2020 Reevaluation, and therefore, FRA relied on the noise assessment conducted for the September 2020 Reevaluation. The Project modifications include additional roadwork at the I-15 freeway northbound lane adjacent to the Victor Valley Station, the Dale Evans Parkway interchange accessing the I-15 freeway southbound ramps, the I-15 freeway median widening at Segment 5, and the I-15 southbound lanes just south of the Sloan Road interchange. While roadwork may increase traffic volume a substantial amount (3 dB or more) near Dale Evans Parkway; sensitive receivers are all located outside the 100-foot screening distances from where the modified roadwork would occur. Therefore, the Project modifications would not result in substantial changes in the evaluation of traffic noise impacts of the DesertXpress EIS or September 2020 Reevaluation.

OPERATIONAL VIBRATION

Project vibration impacts were assessed on an absolute basis using the FRA criterion of 72 vibration decibels (VdB) for residential land uses for the DesertXpress EIS and September 2020 Reevaluation. The September 2020 Reevaluation concluded no vibration impacts would occur from Project operations. As described above, the Project modifications would relocate the rail alignment from the east side of the I-15 freeway into the I-15 freeway median for portions of Segments 1 and 5. The Project modifications to the rail alignment would not result in new vibration impacts since these modifications would not be in closer proximity to existing sensitive receivers. The Project modifications would not result in substantial changes in the evaluation of operational vibration impacts of the DesertXpress EIS or September 2020 Reevaluation.

4.13.3 MITIGATION MEASURES

The following mitigation measures established in the DesertXpress EIS and revised in the September 2020 Reevaluation would avoid adverse effects from noise and vibration:

- Mitigation Measure NV-1: Noise Barriers
- Mitigation Measure NV-3: Building Sound Insulation
- Mitigation Measure NV-4: Property Acquisitions or Easements
- Mitigation Measure NV-10: Construction Noise and Vibration Measures

4.14 ENERGY

This section evaluates whether the Project modifications would result in substantial changes to the evaluation of effects from construction-related energy consumption, operational energy consumption, and peak-period electricity demand discussed in the DesertXpress EIS and September 2020 Reevaluation. As previously established in the September 2020 Reevaluation, the September 2020 Project modifications did not result in substantial changes to the evaluation of energy impacts disclosed in the DesertXpress EIS.

4.14.1 REGULATORY UPDATES

No updates to Federal, California state, or local regulations that pertain to the modified Project's effects on energy have occurred since the September 2020 Reevaluation. The only relevant regulatory update since September 2020 is the passing of Nevada Senate Bill 448 in June 2021. This law advances the

energy portfolio requirements for the state of Nevada, requiring utilities to forecast a path to achieve an 80 percent reduction in carbon dioxide emissions from 2005 levels by 2030, facilitating Nevada's goal to reach 100 percent renewable electricity generation by 2050.⁴³ Regional transition from fossil fuels could result in a slightly lower proportional energy savings resulting from the Project; however, this would not result in substantial changes in the evaluation of energy impacts of the DesertXpress EIS or September 2020 Reevaluation.

No changes in the physical environment have occurred since the September 2020 Reevaluation that would result in substantial changes to the evaluation of the modified Project's effects on energy.

4.14.2 EFFECTS ANALYSIS

CONSTRUCTION-RELATED ENERGY CONSUMPTION

The DesertXpress EIS and September 2020 Reevaluation calculated construction-related energy consumption using energy intensity factors based on the number of track miles and stations. The DesertXpress EIS determined that Project construction would consume approximately 5.0 million British Thermal Units (MMBTU), whereas construction of the Project modifications under the September 2020 Reevaluation would consume approximately 2.4 million MMBTU. It is not anticipated that the construction energy requirements of the modified Project would substantially differ from those disclosed in the September 2020 Reevaluation, since the miles of at-grade alignment, elevated alignment, and proposed station footprints have not changed. Thus, the Project modifications would not result in substantial changes in the evaluation of energy impacts from construction compared with the DesertXpress EIS or September 2020 Reevaluation.

OPERATIONAL ENERGY CONSUMPTION

Operational energy consumption compares the Project's anticipated energy usage against the energy uses of other transportation modes along the Project corridor (e.g., automobiles). This evaluation calculates the reduction in VMT that would occur with implementation of the Project. The September 2020 Reevaluation established the Project is anticipated to result in a net reduction of approximately 502 million-mile VMT annually.⁴⁴ Estimates regarding annual ridership diverted from automobiles during the build out year have not changed under the Project modifications, and would still divert a substantial amount of automobiles to rail within the I-15 freeway corridor. The Project modifications would not result in substantial changes in the evaluation of operational energy consumption of the DesertXpress EIS or September 2020 Reevaluation.

PEAK-PERIOD ELECTRICITY DEMAND

Peak-period electricity demand represents the time of highest electricity usage within a specific region. The DesertXpress EIS evaluated the Project peak-period electricity demand by comparing the Project annual energy consumption against supply capacity estimates within the applicable regions assigned by the US Energy Information Administration's (EIA) Electricity Market Modular (EMM). The EIA redefined the EMM Regions in 2011, after publication of the DesertXpress EIS. Project Segments in California were

⁴³ Nevada Legislature. 2021. *SB448*. <https://www.leg.state.nv.us/App/NELIS/REL/81st2021/Bill/8201/Text>. Accessed April 2022.

⁴⁴ VMT reduction associated with trips diverted from automobiles to rail assumed an estimated 8,061,000 passengers annually for the Project by build out year in 2042.

within EMM Region 20 and Project Segments in Nevada are within EMM Region 21.⁴⁵ Table 4-3 presents the electricity capacity projections for these respective regions. Assuming a maximum hourly peak energy demand of 44.2 MW by 2024 (the Project buildout year) the Project was found to utilize approximately 0.04 percent and 0.07 percent of the total regional energy demand, respectively.⁴⁶

Table 4-3 Regional Energy Demand (2019)⁴⁷

Region	2017	2020	2023	2030	2040
Region 20 (CA)	73.42 GW	76.70 GW	74.44 GW	88.99 GW	105.73 GW
Region 19 (NV)	47.95 GW	47.64 GW	50.07 GW	54.63 GW	63.38 GW

As of June 2020, Project Segments in California are within EEM Region 22 and Project Segments in Nevada are within EMM Region 25.⁴⁸ Table 4-4 presents the current electricity capacity for these regions.

Table 4-4 Regional Energy Demand (2022)⁴⁹

Region	2021	2022	2023	2030	2040
Region 22 (CA)	43.52 GW	46.20 GW	49.26 GW	49.36 GW	52.37 GW
Region 25 (NV)	28.72 GW	29.21 GW	31.10 GW	37.21 GW	45.11 GW

It is assumed the Project modifications would not result in significant changes to operational energy use since the length of the alignment and ridership projections (including train headways and average train capacity) remain consistent with the September 2020 Project. Thus, it is anticipated that the previously assumed maximum hourly peak energy demand of 44.2 MW from the September 2020 Reevaluation would not significantly change. Assuming all energy required for the Project is drawn from California, or from Nevada, the Project would utilize approximately 0.08 percent and 0.09 percent of the total regional energy demand, respectively. The Project would likely split the energy demand between California and Nevada, which would require lower proportions of energy in each region. Thus, the modified Project would not adversely impact regional energy supply. The Project modifications would not result in substantial changes in the evaluation of peak-period electricity demand impacts of the DesertXpress EIS or September 2020 Reevaluation.

⁴⁵ U.S. Energy Information Administration. 2017. The electricity Market Module of the National Energy Modeling System: Model Documentation 2016. July 2017. [https://www.eia.gov/outlooks/aeo/nems/documentation/electricity/pdf/m068\(2016\).pdf](https://www.eia.gov/outlooks/aeo/nems/documentation/electricity/pdf/m068(2016).pdf). Accessed October 2019.

⁴⁶ Operational hourly peak demand calculations utilized 3-hour energy consumption for with 16-car electric trains. Calculations considered worst-case parameters; thus, realistic hourly peak demand is likely to be lower

⁴⁷ U.S. Department of Energy, Energy Information Administration. 2019. *Annual Energy Outlook 2019: Supplemental Tables (Table 57)*. http://www.eia.doe.gov/oiia/aeo/supplement/pdf/sup_elec.pdf. Accessed October 2019.

⁴⁸ U.S. Energy Information Administration. 2020. The electricity Market Module of the National Energy Modeling System: Model Documentation 2020. July 2020. [https://www.eia.gov/outlooks/aeo/nems/documentation/electricity/pdf/m068\(2020\).pdf](https://www.eia.gov/outlooks/aeo/nems/documentation/electricity/pdf/m068(2020).pdf). Accessed April 2022.

⁴⁹ U.S. Department of Energy, Energy Information Administration. 2022. *Annual Energy Outlook 2022: Supplemental Tables (Table 54.22 and Table 54.25)*. https://www.eia.gov/outlooks/aeo/tables_ref.php. Accessed October 2019.

4.14.3 MITIGATION MEASURES

The DesertXpress EIS and September 2020 Reevaluation both determined mitigation measures would not be necessary because the Project would result in an overall reduction in total energy consumption. As the modified Project would still result in an overall reduction in total energy consumption, no mitigation measures would be applied.

4.15 BIOLOGICAL RESOURCES

This section evaluates whether the Project modifications would result in substantial changes to the evaluation of effects to biological resources discussed in the DesertXpress EIS and September 2020 Reevaluation. As previously established in the September 2020 Reevaluation, the September 2020 Project modifications generally reduced impacts to biological resources relative to the DesertXpress EIS. Refer to Attachment C, *Biological Resources Technical Report*, for further discussion of effects to biological resources in proximity to the modified Project.

4.15.1 REGULATORY UPDATES

Below describes changes to the regulatory environment for biological resources since the September 2020 Reevaluation.

FRA informally consulted with the USFWS regarding the September 2020 Project modifications and on May 6, 2021, the USFWS concurred that re-initiation of formal consultation under Section 7 of the Endangered Species Act was not required (see Attachment B, *USFWS Concurrence Letter, September 1, 2023*). The USFWS also acknowledged that Southern California Edison would apply to BLM for separate authorization for the construction of the two electrical substations and transmission lines that would supply power to the rail line. In addition, the USFWS issued revised desert tortoise protective measures for the Project's Biological Opinion (FWS-SB-20B0244-21TA0969) based on the modified Project 2020 footprint evaluated in the September 2020 Reevaluation. These revised protective measures were incorporated into the September 2020 Reevaluation. FRA determined, in consultation with USFWS, that the project changes have substantially reduced impacts on species listed as threatened or endangered and critical habitat, and no new impacts would occur as a result of the Project modifications that would require re-initiation of formal Section 7 consultation, and the Biological Opinion issued would apply to the Project, subject to the revised mitigation measures (see Attachment B).

On October 15, 2019, the California Department of Fish and Wildlife (CDFW) received a petition from the Center for Biological Diversity to list the Western Joshua Tree (*Yucca brevifolia*) as threatened under the California Endangered Species Act (CESA). On September 24, 2020, CDFW published notice that the Western Joshua Tree is a candidate species as defined by Section 2068 of the Fish and Game Code. In the June 16, 2022, commission hearing to list the Joshua tree under CESA resulted in a tie. At its February 10, 2023 meeting in light of the introduction of the Western Joshua Tree Conservation Act, the Commission voted to continue its decision on listing western Joshua tree under CESA to a future meeting commission.

4.15.2 EFFECTS ANALYSIS

INTRODUCTION OR SPREAD OF INVASIVE, NON-NATIVE WEED SPECIES INTO NATURAL VEGETATION COMMUNITIES

The effects related to the introduction and spread of invasive, non-native weed species discussed in the DesertXpress EIS and the September 2020 Reevaluation would still apply to the modified Project footprint. The implementation of Mitigation Measure BIO 4 (avoid dispersal) from the DesertXpress EIS would reduce or mitigate adverse effects from noxious weeds, and the Project modifications would not result in substantial changes in the evaluation of invasive, non-native weed species impacts of the DesertXpress EIS or September 2020 Reevaluation.

LOSS OF OR DAMAGE TO NATIVE VEGETATION COMMUNITIES

The effects related to the loss of or damage to native vegetation communities, as described in the DesertXpress EIS, still apply to the modified Project footprint. The modified Project footprint would result in reduced acreages of permanent and temporary impacts on these vegetation communities relative to the DesertXpress EIS. Based on the vegetation mapping and application of removed impact areas and added impact areas since September 2020 Reevaluation, the modified Project footprint would permanently convert between 127 to 146 acres and temporarily affect between 670 to 710 acres of native vegetation communities. The sum of the modified Project 2022 footprint and the modified Project 2020 footprint results in approximately 1,280 acres of permanent impacts and approximately 1,400 acres of temporary impacts, whereas the DesertXpress EIS estimated that the Preferred Alternative would permanently convert approximately 1,500 acres and temporarily affect 4,500 acres of native vegetation communities. In addition, most of the modified Project impacts now occur within or adjacent to the I-15 freeway ROW, which contains degraded quality native vegetation communities. Mitigation Measures BIO-5 (confine equipment), BIO-6 (revegetation), BIO-7 (retain topsoil), BIO-8 (restore topography), BIO-9 (erosion control), BIO-18 (Nevada compensatory mitigation), and BIO-18 (California compensatory mitigation) from the DesertXpress EIS would be implemented to avoid, minimize or mitigate adverse effects from loss of or damage to native vegetation communities. Thus, the Project modifications would not result in substantial changes in the evaluation of native community impacts of the DesertXpress EIS or September 2020 Reevaluation.

SENSITIVE VEGETATION COMMUNITIES

The effects related to the loss of sensitive vegetation communities, as described in the DesertXpress EIS, still apply to the modified Project footprint. A previously evaluated sensitive plant community, Joshua Tree Wooded Shrubland, is present within Segment 3 of the modified Project footprint. However, the acreage of permanent and temporary impacts on this sensitive vegetation community has been reduced substantially relative to the DesertXpress EIS analysis because the modified Project footprint is now primarily located within or adjacent to the I-15 freeway ROW. The DesertXpress EIS estimated that the Preferred Alternative would permanently convert approximately 84 acres and temporarily affect 194 acres of Joshua Tree Wooded Shrubland. Based on the vegetation mapping, the modified Project footprint would reduce overall impact to the Joshua Tree Wooded Shrubland and result in significantly fewer permanent (approximately 4.9 acres) and temporary (approximately 15.3 acres) impacts.

The DesertXpress EIS estimated that the Preferred Alternative would permanently convert approximately two acres and temporarily affect 13 acres of Mesquite Shrubland. The modified Project

footprint is no longer anticipated to permanently affect Mesquite Shrubland, however 2 acres of temporary impacts may occur.

Mitigation Measures BIO-5 (confine equipment), BIO-6 (revegetation), BIO 7 (retain topsoil), BIO-8 (restore topography), BIO-9 (erosion control), BIO-10 (tree removal permit), BIO 11 (compensatory mitigation), and BIO-13 (pre-construction surveys) from the DesertXpress EIS would be implemented to reduce or mitigate adverse effects from loss of sensitive vegetation communities. Thus, the Project modifications would not result in substantial changes in the evaluation of sensitive vegetation community impacts of the DesertXpress EIS or September 2020 Reevaluation.

POTENTIAL EFFECTS ON SPECIAL-STATUS PLANT POPULATIONS

The effects related to construction and operational activities on special-status plant populations, as described in the DesertXpress DEIS, still apply to the modified Project footprint. The modified Project footprint minimizes adverse impacts on sensitive species identified in the DesertXpress EIS because most of the Project footprint is now within or adjacent to the I-15 freeway ROW, which provides little habitat for special-status plant species. The biological resources are degraded within the modified Project footprint due to the proximity to existing maintained roadway infrastructure. Special-status plant surveys were conducted within the Ivanpah Utility Corridor and the Sloan VMF site (see Section 5.15.2 for discussion of the Sloan VMF effects analysis on biological resources). Special-status plants listed under the Endangered Species Act or designated sensitive by the BLM were not identified during the surveys. The implementation of Mitigation Measures BIO-5 (confine equipment), BIO-14 (avoid known populations), and BIO-15 (mitigation) from the DesertXpress EIS would be implemented to reduce or mitigate adverse effects on special-status plant populations, and the Project modifications would not result in substantial changes in the evaluation of special-status plant population impacts of the DesertXpress EIS or September 2020 Reevaluation.

POTENTIAL EFFECTS ON SPECIAL STATUS WILDLIFE

The modified Project footprint is now primarily located within the I-15 freeway ROW, which provides little to no habitat for special-status wildlife due to the proximity to existing maintained roadway infrastructure. The modified Project footprint would result in fewer acres of permanent and temporary impacts on wildlife habitat relative to the impacts evaluated in the DesertXpress EIS (refer to Section 7.2.6 of Attachment C for further discussion of effects to special-status wildlife species and wildlife movement from implementation of the modified Project). Therefore, the Project modifications would not result in substantial changes in the evaluation of special-status wildlife impacts of the DesertXpress EIS or September 2020 Reevaluation.

POTENTIAL EFFECTS ON SPECIAL MANAGEMENT LANDS

The effects related to construction and operational activities on Special Management Lands, as described in the DesertXpress EIS, still apply to the modified Project footprint, though in a greatly reduced capacity now that the modified Project footprint would primarily be within the I-15 freeway corridor. The modified Project footprint would affect three types of Special Management Lands: USFWS critical habitat, BLM-administered public lands, and BLM ACECs. Table 7.2 3 and Table 7.2 4 in Attachment C show the permanent and temporary impacts from the DesertXpress EIS and the modified Project 2020 and 2022 footprints on Special Management Lands.

Although the modified Project footprint would intersect USFWS critical habitat and BLM ACECs, biological resource degradation has occurred in most areas where impacts would occur and no longer provide the habitat or unique value for which the area was designated. Each of these Special Management Lands are bound by I-15 freeway on one side or are bisected by I-15 freeway. Most of the modified Project footprint is within the I-15 freeway ROW, which is relatively degraded and subject to trash, routine roadway maintenance, recreational off highway vehicle (OHV) use, and shoulder disturbances from vehicles leaving the freeway. Thus, the Project modifications would not result in substantial changes in the evaluation of impacts to Special Management Lands of the DesertXpress EIS or September 2020 Reevaluation.

Critical Habitat

The SCE Utility Corridor previously crossed the Mojave River in Victorville, which is designated as critical habitat for the southwestern willow flycatcher. This component is no longer a part of the modified Project; therefore, the Project would not affect Southwestern willow flycatcher critical habitat.

Designated critical habitat for desert tortoise is present within the modified Project footprint. Based on modified Project construction and operation activities as well as the modified Project footprint occurring within the I-15 freeway median, the modified Project footprint is not expected to change the intended conversion purpose or inhibit the ability of the Primary Constituent's Elements to be functionally established within the critical habitat. The Project modifications would not result in substantial changes in the evaluation of critical habitat impacts of the DesertXpress EIS or September 2020 Reevaluation.

Areas of Critical Environmental Concern

Impacts on the Cronese Basin and Halloran Wash ACECs were evaluated in the DesertXpress EIS. In September 2016, the BLM issued the ROD for the DRECP, which added five new ACECs within the modified Project footprint; therefore, impacts on these five ACECs were not previously evaluated in the DesertXpress EIS. They were, however, discussed and evaluated in September 2020 Reevaluation. Table 7.2 5 in Attachment C summarizes the impacts on BLM-administered public lands within ACECs and their associated disturbance caps by impact type, for the DesertXpress EIS Preferred Alternative, September 2020 Reevaluation, and modified Project footprints.

POTENTIAL EFFECTS ON WILDLIFE MOVEMENT

The section describes the potential for the modified Project alignment to interfere with wildlife movement. As described in Section 2.0, the modified alignment would be located entirely within the I-15 freeway, with Segment 1 through Segment 5 being located within the I-15 freeway median.

Suitable habitat for desert bighorn sheep, as well as other desert wildlife species, occurs in several areas in proximity to the Project corridor, primarily within the California portion of the Project. Along the I-15 freeway, there are four potential bighorn sheep habitat connectivity corridors within the Project study area; specifically, I-15 freeway bridges cross washes in areas of bighorn sheep populations at Rocky Wash (Cady Mountains), Zzyzx Road and Oat Ditch (Soda Mountains), Kali Ditch, and the Clark Mountain Ditch (Mountain Pass). Existing underpasses along the I-15 freeway facilitate travel of diverse desert wildlife species, including several species of medium to large-bodied mammals as well as several smaller species of mammals, birds, and reptiles, including desert tortoise. However, because the I-15 freeway underpasses do not have sufficiently large openings beneath the roadway to promote large animal crossing and are not placed near frequently used bighorn habitat, they are not currently known to direct or facilitate bighorn sheep movement across the I-15 freeway

The California Department of Fish and Wildlife, the National Park Service, and a non-governmental organization raised concerns that the inclusion of the rail alignment within the I-15 freeway median would restrict wildlife movement by creating a more impermeable barrier, and therefore restrict wildlife movement across the I-15 freeway. To ensure the safety of both highway and rail travelers, the Project would require the construction of intrusion barriers along the alignment and exclusionary fencing. Although the I-15 freeway is located within habitat connectivity corridors, wildlife movement across the freeway is rare.⁵⁰ The infrequency of crossings suggests that the I-15 currently acts a substantial barrier to wildlife movement independent of the rail alignment. As such, the inclusion of the rail line within the I-15 highway median, or directly adjacent to the I-15 will not result in a significant effect to the wildlife beyond the existing conditions.

In addition, by co-locating the Project with the existing I-15 highway, the Project would not result in new impacts to wildlife by avoiding the creation of new barriers within these connectivity corridors. The effects of the rail line will be confined to the existing barrier (i.e., the I-15 highway). Furthermore, the Project will maintain or enhance all existing I-15 freeway culverts and bridges across washes. For example, where the I-15 freeway utilizes a culvert to convey water under the freeway, the rail alignment will include a culvert of the same size and capacity. The same approach will be implemented where the freeway crosses washes on bridge or viaduct structures. As a result, wildlife movement in this area should remain at approximately the same levels, though surface-level crossings would be restricted. Since such crossings are rare, this restriction is unlikely to affect these species.

4.15.3 MITIGATION MEASURES

The Biological Opinion (BO) prepared in 2011 by USFWS for the Project stipulated conservation measures to avoid or reduce potential impacts on Federally protected species. These conservation measures were incorporated as commitments the project sponsor will implement, as documented in the 2011 DesertXpress ROD.⁵¹ Many of the original BO protective measures apply to desert tortoise 'suitable habitat.'

The mitigation measures developed in the DesertXpress EIS and revised in the September 2020 Reevaluation would mitigate for and avoid adverse effects to biological resources. Refer to Attachment D for the full list and descriptions of mitigation measures, which includes desert tortoise conservation measures, terms and conditions of the BO specific to desert tortoise, and general biological resource mitigation measures.

As discussed in Attachment D, FRA revised mitigation measures since the September 2020 Reevaluation, in consultation with the USFWS. FRA sent a concurrence letter to USFWS on August 11, 2023 and received USFWS concurrence on the revised mitigation measures on September 1, 2023.

⁵⁰ See Prentice, Paige, Ashley Evans, Danielle Glass, Richard Ianniello, and Tom Stephenson. *Desert Bighorn Sheep Status Report: November 2013 to October 2016*. California Department of Fish and Wildlife, Region 6 (September 2018); Dekelaita, Daniella J., Clinton W. Epps, David W. German, Jenny G. Powers, Ben J. Gonzales, Regina K. Abella-Vu, Neal W. Darby, Debra L. Hughson, and Kelley M. Stewart, *Animal Movement and Associated Infectious Disease Risk in a Metapopulation*, Royal Society Open Science (2023). These studies explain that of the 94 unique bighorn sheep collared from 2013-2020 in mountain ranges near the I-15, two individuals, an ewe accompanied by a lamb, have successfully crossed the I-15.

⁵¹ As lead Federal agency, FRA will monitor compliance with these mitigation measures, except for activities that occur on BLM-managed lands, for which BLM will monitor compliance.

Furthermore, Mitigation Measures BIO-2 and BIO-19, which were included in the 2011 DesertXpress EIS and revised in the September 2020 Reevaluation, would remain in effect and address potential impacts to wildlife connectivity.⁵²

4.16 CUMULATIVE IMPACTS

This section evaluates whether the Project modifications would result in substantial changes to the evaluation of cumulative impacts discussed in the DesertXpress EIS. As previously established in the September 2020 Reevaluation, the September 2020 Project contributions to cumulative impacts were unchanged or reduced because of reductions in the overall Project footprint and location within the I-15 freeway ROW.

Review of present and reasonably foreseeable projects within the Project vicinity did not identify new information that would substantially affect the cumulative impacts conclusions or assessment conducted in the DesertXpress EIS or September 2020 Reevaluation.

4.16.1 REGULATORY UPDATES

No updates to Federal, state, or local regulations that pertain to cumulative impacts analysis have occurred since the September 2020 Reevaluation. Review of present and reasonably foreseeable projects within the modified Project vicinity did not identify new information that would substantially affect the cumulative impacts conclusions or assessment conducted in the DesertXpress EIS or September 2020 Reevaluation.

4.16.2 ANALYSIS OF CUMULATIVE IMPACTS

The evaluation of cumulative impacts for this Reevaluation considered impacts from the Project modifications in combination with current, planned, and reasonably foreseeable projects in the Project vicinity. Overall, the modified Project's contributions to cumulative impacts would be unchanged or reduced because of the modified Project's reduced footprint and location within the I-15 freeway ROW. Furthermore, the mitigation measures developed in the DesertXpress EIS and revised in the September 2020 Reevaluation to reduce Project impacts would still apply to the modified Project to reduce contributions to cumulative effects. Thus, the type and magnitude of impacts resulting from the Project modifications would be comparable to those identified in the DesertXpress EIS and September 2020 Reevaluation. The evaluation of cumulative impacts from the modified Project is provided below.

Land Use, Communities, and Environmental Justice: The DesertXpress EIS concluded that the Project would not substantially alter existing land uses in the area and would not have a considerable contribution to cumulative land use, community, and environmental justice impacts, because the Project follows the I-15 freeway and proposes land uses that would be compatible with the existing transportation corridor. The conclusions of the DesertXpress EIS remain valid because the modified Project would still be located within the I-15 freeway ROW and the proposed station locations would be on undeveloped lands adjacent to the I-15 freeway. As a result, the Project modifications would not

⁵² The California Department of Transportation (Caltrans), the California Department of Fish and Wildlife (CDFW) and Brightline West have entered into an agreement to design and construct three wildlife overcrossings across Interstate 15 (I-15) and the Project. These dedicated overcrossings can provide a sustainable and safe path for wildlife – especially for bighorn sheep – over the existing northbound and southbound highway lanes and the future high-speed rail system to be built within the median. These crossings are being implemented by Caltrans, CDFW and Brightline West, and are not part of this Project.

result in substantial changes in the evaluation of cumulative land use, community, and environmental justice impacts of the DesertXpress EIS or September 2020 Reevaluation.

Growth: The DesertXpress EIS concluded that the Project, in combination with the construction of the proposed Ivanpah Valley Airport, could have a negative economic impact on the City of Barstow by reducing automobile travel through the Barstow area. However, the DesertXpress EIS noted that the assumption of construction and operation of this airport would be speculative in the absence of a formal airport implementation plan. Without the construction of the Ivanpah Valley Airport, the Project would likely contribute to a positive economic impact to the City of Barstow through the generation of employment opportunities. As the completion of the Ivanpah Valley Airport remains uncertain, the Project modifications would not result in substantial changes in the evaluation of cumulative growth impacts of the DesertXpress EIS or September 2020 Reevaluation.

Farmlands and Grazing Land: The DesertXpress EIS determined that the Project's contribution to cumulative farmland impacts would be negligible because the Project would not require substantial conversion of farmlands. However, the DesertXpress EIS concluded that the Project, in combination with regional energy projects, would result in cumulative impacts on grazing lands by dividing grazing lands and converting such lands to non-grazing uses. The modified Project alignment is located within or immediately adjacent to the I-15 freeway, which would minimize the conversion of farmlands and grazing land and reduce the Project contribution to cumulative farmland and grazing land impacts. Thus, the Project modifications would not result in substantial changes in the evaluation of cumulative farmland and grazing land impacts of the DesertXpress EIS or September 2020 Reevaluation.

Utilities/Emergency Services: The DesertXpress EIS concluded that the Project could contribute to cumulative utility/emergency service impacts by increasing utility demand and requiring emergency services. However, the DesertXpress EIS noted that mitigation measures applied to the Project would avoid and minimize impacts on utility and emergency service providers, thus reducing the Project contribution to this cumulative impact. The Project modifications would not create additional demand for utilities and emergency services, and sufficient regional utility capacity still exists to serve the Project. Furthermore, mitigation measures developed in the DesertXpress EIS and revised in the September 2020 Reevaluation to minimize impacts on utility and emergency service providers would still apply to the Project. Thus, the Project modifications would not result in substantial changes in the evaluation of cumulative utilities/emergency service impacts of the DesertXpress EIS or September 2020 Reevaluation.

Traffic and Transportation: The DesertXpress EIS determined that the Project, in combination with other regional projects, could contribute to cumulative traffic impacts. However, the DesertXpress EIS included mitigation measures to avoid and minimize the Project's contribution to cumulative traffic impacts. The September 2020 Reevaluation determined the September 2020 modifications would result in similar traffic impacts to those identified in the DesertXpress EIS, although these impacts would occur at different locations within the transportation network due to the relocated Dale Evans and Warm Springs stations. Thus, the aforementioned mitigation measures were revised in the September 2020 Reevaluation to accommodate the relocated Dale Evans and Warm Springs stations, which have not changed for the modified Project. Mitigation measures developed in the DesertXpress EIS and revised in the September 2020 Reevaluation would minimize or avoid such impacts through implementation of roadway improvements. Thus, the Project modifications would not result in substantial changes in the evaluation of cumulative traffic impacts of the DesertXpress EIS or September 2020 Reevaluation.

Visual Resources: The DesertXpress EIS concluded that the Project, in combination with other projects in the area, would change the visual character of the Project vicinity. However, the DesertXpress EIS included mitigation measures to avoid and minimize the Project contribution to this cumulative impact. As the modified Project proposes structures of the same size and approximate locations as evaluated in the DesertXpress EIS and September 2020 Reevaluation, mitigation measures developed in the DesertXpress EIS and revised in the September 2020 Reevaluation would still apply and remain adequate to reduce the Project's visual impacts. Thus, the Project modifications would not result in substantial changes in the evaluation of cumulative visual impacts of the DesertXpress EIS or September 2020 Reevaluation.

Cultural and Paleontological Resources: The DesertXpress EIS concluded that the Project could contribute to cumulative impacts in combination with nearby projects, such as capacity improvements to the I-15 freeway, through disturbing significant cultural and paleontological resources in the area. However, because of the regulatory protections given to significant cultural and paleontological resources, mitigation measures would be applied to the Project and would likely be applied to other nearby projects. The Project modifications would not substantially increase the scope of the Project to result in greater impacts on significant cultural or paleontological resources and mitigation measures developed in the DesertXpress EIS and revised in the September 2020 Reevaluation would still apply to the modified Project. Thus, the Project modifications would not result in substantial changes in the evaluation of cumulative cultural and paleontological impacts of the DesertXpress EIS or September 2020 Reevaluation.

Hydrology and Water Quality: The DesertXpress EIS concluded that the Project, in combination with other nearby projects, would result in cumulative impacts resulting from traversing ephemeral drainages. The modified Project would traverse the same aquatic features as the Preferred Alternative analyzed in the DesertXpress EIS as well as the September 2020 Reevaluation and would not result in new types of hydrological and water quality impacts. Thus, the Project modifications would not result in substantial changes in the evaluation of cumulative hydrology and water quality impacts of the DesertXpress EIS or September 2020 Reevaluation.

Geology and Soils: The DesertXpress EIS concluded the Project would be unlikely to contribute to cumulative geology and soils impacts because such impacts depend on the local geological setting. The modified Project is of a similar scope and location to the Project as evaluated in the DesertXpress EIS and September 2020 Reevaluation. Therefore, the Project modifications would not result in substantial changes in the evaluation of cumulative geology and soils impacts of the DesertXpress EIS or September 2020 Reevaluation.

Hazardous Materials: The DesertXpress EIS concluded that the Project would be unlikely to contribute to cumulative impacts relating to hazardous materials because environmental effects relating to hazardous materials are generally site-specific. The Project modifications would not include new activities requiring the use of previously unevaluated hazardous materials. Thus, the Project modifications would not result in substantial changes in the evaluation of cumulative hazardous materials impacts of the DesertXpress EIS or September 2020 Reevaluation.

Energy, Air Quality, and Global Climate Change: The DesertXpress EIS concluded that the Project would have a positive effect on energy and air quality during operation because electric trains employed in Project operation would provide an energy efficient, lower-emission alternative to automobile travel. The modified Project would still employ electric train technology and reduce VMT through diverting

automobile traffic from the I-15 freeway. Thus, the Project modifications would not result in substantial changes in the evaluation of cumulative energy, operational air quality, and global climate change impacts of the DesertXpress EIS or September 2020 Reevaluation.

The DesertXpress EIS also concluded that the Project would be unlikely to contribute to cumulative energy impacts during construction because the Project would include mitigation measures – such as the use of energy efficient construction equipment – that would avoid excessive energy use. As the Project modifications reduce the original overall Project construction footprint, Project construction would require less energy than considered in the DesertXpress EIS. Additionally, the Project would still include mitigation measures to reduce construction energy consumption. Thus, the Project modifications would not result in substantial changes in the evaluation of cumulative construction energy impacts of the DesertXpress EIS or September 2020 Reevaluation.

The DesertXpress EIS determined that Project construction, in combination with other nearby energy and transportation projects, would result in cumulative impacts from construction emissions, such as fugitive dust and emissions from construction equipment. The modified Project would require less ground disturbance during construction relative to the Project evaluated in the DesertXpress EIS and would likely result in fewer construction-period emissions. Thus, the Project modifications would not result in substantial changes in the evaluation of cumulative construction air quality impacts of the DesertXpress EIS or September 2020 Reevaluation.

Noise and Vibration: The DesertXpress EIS concluded that vibration generated by the Project would not result in cumulative impacts because of the localized nature of vibration. As the Project modifications would not introduce vibration impacts beyond those considered in the DesertXpress EIS or September 2020 Reevaluation, the modified Project would not result in new cumulative vibration impacts.

The DesertXpress EIS determined that Project noise, combined with noise resulting from other nearby projects, could result in cumulative noise impacts. The Project modifications would not result in noise impacts along the alignment than those considered in the September 2020 Reevaluation. The DesertXpress EIS concluded that mitigation measures prescribing the use of sound barriers would avoid and minimize these impacts. Consistent with the September 2020 Reevaluation, refinements to mitigation measures would place barriers in new locations selected to avoid and minimize the modified Project noise impacts. Thus, the Project modifications would not result in substantial changes in the evaluation of cumulative noise and vibration impacts of the DesertXpress EIS or September 2020 Reevaluation.

Biological Resources: The DesertXpress EIS determined that the Project, in combination with nearby transportation and energy projects, would result in cumulative impacts on biological resources. By relocating the entire alignment to the I-15 freeway ROW, the Project modifications would result in fewer biological impacts than identified in the DesertXpress EIS. Thus, the Project modifications would not result in substantial changes in the evaluation of cumulative biological resource impacts of the DesertXpress EIS or September 2020 Reevaluation.

5.0 Environmental Consequences: Sloan Vehicle Maintenance Facility

This section evaluates whether the Sloan VMF would result in substantial changes to the evaluation of effects established in the DesertXpress EIS and September 2020 Reevaluation.

The Project design evaluated in the DesertXpress EIS included an operations, maintenance, and storage facility (OMSF) in close proximity to the original Victorville Station west of the I-15 freeway and included facilities for train washing, repair, parts, storage, and an operation control center. . The OMSF would have required approximately 50 acres⁵³ of permanent footprint, and approximately 400 employees.

In the September 2020 Reevaluation, the OMSF was relocated with the Victorville Station to the south side of the I-15 freeway at Dale Evans Parkway in Apple Valley and the MOW facility was relocated to approximately six miles south of the California/Nevada state line, adjacent to the existing California Agricultural Inspection Station. The MOW facility would have required 25 acres of permanent footprint. At that time a location for vehicle maintenance and storage had not been identified.

Based on additional design considerations, Brightline West proposes to locate the vehicle maintenance and storage activities to a site located in Segment 6 west of the I-15 freeway and south of Sloan Road. Brightline West also proposes to construct an additional freight track corridor to connect the VMF to the adjacent UPRR line. The Sloan VMF and adjacent UPRR connection would require 246 acres of permanent footprint and 105 acres of temporary footprint, and includes:

- Storage and staging tracks and overhead catenary system from which trains would be mobilized for daily operations.
- Appurtenances associated with the Sloan VMF, including but not limited to a train car wash station, a train performance monitoring station, an Operations Control Center, a power substation and distribution lines, utility connections, circulation system, site control, fencing, and parking.

The MOW facility would also be removed and divided between the Sloan VMF and the Victor Valley Station. The Sloan VMF will be a permanent workplace for approximately 100 employees related to either the maintenance of the Brightline West train fleet or performing other functions such as driving the trains. These facilities would be located on land under BLM jurisdiction and would therefore require a ROW grant lease from BLM.

5.1 LAND USE, COMMUNITY, AND ENVIRONMENTAL JUSTICE

This section evaluates whether the Sloan VMF would result in substantial changes to the evaluation of effects to land use, community, and environmental justice discussed in the DesertXpress EIS and September 2020 Reevaluation.

5.1.1 REGULATORY UPDATES

FEDERAL

The Sloan VMF would result in the use of land managed by BLM, and therefore could potentially conflict with BLM land use policies. However, the Sloan VMF is not located within BLM-designated ACECs, Resource Management Plan Areas, nor Natural Conservation Areas.⁵⁴ As discussed in Section 4.1.3, Conflict with Land Use Plans, Policies, or Regulations, mitigation measures would be applied to avoid or reduce any potential conflict with planned uses at these locations.

⁵³ The 2011 DesertXpress EIS states that site envelopes for the OMSF range from about 95 acres to 260 acres, but the final footprint is anticipated to be notably smaller than the areas surveyed.

⁵⁴ Bureau of Land Management (BLM). 2023. *Nevada Planning and NEPA*. <https://www.blm.gov/programs/planning-and-nepa/plans-in-development/nevada>. Accessed: August 2023.

Clark County Conservation of Public Land and Natural Resources Act of 2002

As discussed in the DesertXpress EIS and September 2020 Reevaluation, the Act directed BLM to establish the Sloan Canyon National Conservation Area, expanded the Red Rock National Conservation Area and preserved petroglyph sites near Sloan. These areas were designated to conserve significant scenic and important cultural resources in southern Nevada.

STATE AND LOCAL

The Clark County Master Plan was updated in November 2021, resulting in updates to land use designations where the modified Project would traverse Nevada. The Sloan VMF would be located on Open Space and Business Employment land uses.⁵⁵

5.1.2 EFFECTS ANALYSIS

RESIDENTIAL AND BUSINESS DISPLACEMENTS

The Sloan VMF would be constructed on undeveloped land and thus would not result in residential or business displacements, and therefore would not result in changes in the evaluation of residential and business displacements of the DesertXpress EIS or September 2020 Reevaluation.

DIVISION OF AN ESTABLISHED COMMUNITY

The Sloan VMF site is located adjacent to the I-15 freeway and is not located in proximity to existing communities. The closest residential community to the Sloan VMF is the Southern Highlands residences approximately 2 miles north. As such, the Sloan VMF would not result in substantial changes in the evaluation of community division impacts of the DesertXpress EIS or September 2020 Reevaluation.

INTERFERENCE WITH NORMAL FUNCTIONING OF ADJACENT LAND USES

The Sloan VMF would result in new or previously identified footprint impacts outside of the I-15 freeway ROW. The Sloan VMF would be adjacent to Business Employment, Open Lands, Corridor Mixed-Use, and Public Use land uses.⁵⁶ Mitigation measures identified in the DesertXpress EIS and September 2020 Reevaluation that would avoid or minimize negative impacts to adjacent land uses would still apply to the Sloan VMF. Therefore, the Sloan VMF would not result in substantial changes in the evaluation of impacts on the normal functioning of adjacent land uses of the DesertXpress EIS or September 2020 Reevaluation.

CONFLICT WITH LAND USE PLANS, POLICIES, OR REGULATIONS

The Sloan VMF would not result in new or previously unidentified footprint impacts and would be located on Business Employment and Open Space land uses.⁴⁰ The Sloan VMF would not be located in any areas designated under the Clark County Conservation of Public Land and Natural Resources Act of 2002 or impact the preserved petroglyph sites near Sloan. The Sloan VMF is anticipated to have high

⁵⁵ Clark County. 2021. *South County Planned Land Use Maps*.

https://www.clarkcountynv.gov/government/departments/comprehensive_planning_department/library/maps.php#outer-8513sub-8529. Accessed: June 2022.

⁵⁶ Clark County. 2021. *South County Planned Land Use Maps*.

https://www.clarkcountynv.gov/government/departments/comprehensive_planning_department/library/maps.php#outer-8513sub-8529. Accessed: June 2022.

compatibility with Business Employment land uses, but low compatibility with Open Space land use, based on the compatibility of land use designations identified by the DesertXpress EIS.

The Sloan VMF is located on land under BLM jurisdiction; the September 2020 Reevaluation identified Mitigation Measure LU-3 to address potential conflicts with existing land use designations in accordance with the DRECP LUPA. This mitigation measure would apply and would avoid or reduce any potential conflicts with planned uses designated by the DRECP LUPA at this location. Thus, the Sloan VMF would not result in substantial changes in the evaluation of land use plan, policy, or regulation impacts of the DesertXpress EIS or September 2020 Reevaluation.

CONFLICTS WITH AIRPORT LAND USES

The Sloan VMF would not be in proximity to existing or planned airport facilities such that conflicts with airport land uses would occur. The nearest airport to the Sloan VMF is the Henderson Executive Airport located approximately 4.5 miles northeast. The Sloan VMF would not result in substantial changes in the evaluation of airport land use impacts of the DesertXpress EIS or September 2020 Reevaluation.

ENVIRONMENTAL EFFECTS DISPROPORTIONATELY BORNE BY LOW-INCOME OR MINORITY POPULATIONS

The Sloan VMF is not located within or adjacent to environmental justice block groups.⁵⁷ Therefore, the Sloan VMF would not result in new environmental effects disproportionately borne by environmental justice communities, and the Project modifications would not result in substantial changes in the evaluation of environmental justice impacts of the DesertXpress EIS or September 2020 Reevaluation.

5.1.3 MITIGATION MEASURES

The following mitigation measures established in the DesertXpress EIS and revised in the September 2020 Reevaluation would avoid adverse land use effects:

- Mitigation Measure LU-1: Rail Alignment Design in One-Engine Inoperative Zones
- Mitigation Measure LU-2: Rail Alignment Design in Existing and Planned Runway Zones

Mitigation Measure LU-3: DRECP Land Use Plane Amendment Conservation and Management Action Compliance, established in the September 2020 Reevaluation, would still apply to the modified Project to ensure compliance with applicable goals, policies, and CMAs where the Project would traverse land under BLM management protected by the DRECP LUPA.

Additionally, mitigation measures pertaining to the resource topics listed below would be implemented to avoid and minimize impacts on adjacent land uses:

- **Utilities.** Avoidance or minimization of conflicts with existing utility infrastructure (including coordination with existing utility providers).
- **Traffic.** The addition of signalization and/or lanes to the intersection approaches.
- **Visual Resources.** Use of aesthetically pleasing materials for the rail alignment that minimize reflectivity, use of architecture and earth tone colors at the Victor Valley Station site that reflect the surrounding desert landscape, design of signage at the Victor Valley Station site to reflect the scale and character of the site and surroundings, use of contour grading, orderly construction site

⁵⁷ United States Environmental Protection Agency. 2019. EJSCREEN: Environmental Justice Screening and Mapping Tool. Available: <https://www.epa.gov/ejscreen>. Accessed April 2022.

management, minimization of light spillover during construction, and use of visual screening of construction areas as appropriate. Coordination with stakeholder agencies to create a unified aesthetic theme that supports the aesthetic goals of the community, including specific design elements part of the Aesthetic and Landscape Task Force (ALTF). The aesthetic treatment of the structures shall involve color, texture, and patterns that tie into the Brightline West Project's Project Aesthetic and Landscape Masterplan (PALM) to create a visual link between the structures and other Project elements along the corridor.

- **Air Quality.** Use of best management dust control practices to minimize air quality impacts during construction.
- **Noise.** Installation of noise barriers, use of sound and vibration reducing materials, relocation of crossovers or special track work, property acquisitions, limited construction times, limited locations of construction.

5.2 GROWTH

This section evaluates whether the Sloan VMF would result in substantial changes to the evaluation of effects to regional population, housing, and employment effects discussed in the DesertXpress EIS and September 2020 Reevaluation.

5.2.1 REGULATORY UPDATES

No updates to Federal, state, or local regulation that pertain to the modified Project's effects on local and regional growth have occurred since the September 2020 Reevaluation.

5.2.2 EFFECTS ANALYSIS

CONSTRUCTION-PERIOD EMPLOYMENT

The DesertXpress EIS estimated that Project design and construction would have a positive economic effect on the Project area, generating approximately 17,469 jobs in Clark County, Nevada. Construction of the Sloan VMF is not anticipated to have a significant effect on construction-period employment relative to the overall Project. Therefore, the Sloan VMF would not result in substantial changes in the evaluation of construction-period employment impacts as disclosed in the DesertXpress EIS or September 2020 Reevaluation. Voluntary Mitigation Measure GRO-1 would still apply in order to ensure jobs generated by the Project would be made available to county residents.

PERMANENT EMPLOYMENT

The Sloan VMF will provide a permanent workplace for approximately 100 employees related to operations and maintenance of the train fleet, and thus the Project modifications would result in higher permanent employment overall in the Las Vegas area. The removal of the collocated OMSF at the Victor Valley Station would result in a reduction in projected permanent employment in the Victor Valley area. Voluntary Mitigation Measure GRO-1 would still apply for the modified Project, to ensure jobs generated by the Project would be made available to county residents. Thus, the Sloan VMF would not result in substantial changes in the evaluation of permanent employment impacts of the DesertXpress EIS or September 2020 Reevaluation.

TRANSIT-ORIENTED DEVELOPMENT POTENTIAL

The relocation of the VMF would not change the September 2020 Reevaluation conclusions regarding induced TOD because modified Project would continue to connect the Victorville area and Las Vegas and, would not substantially change the nature of trips provided during Project operations. Thus, the Sloan VMF would not result in significant TOD development impacts not evaluated in the DesertXpress EIS or September 2020 Reevaluation. Voluntary Mitigation Measure GRO-2 would still apply to the modified Project to encourage implementation of transit oriented and master planned development.

ECONOMIC VITALITY

The September 2020 Reevaluation disclosed that the Project has the potential to negatively affect future economic growth in the towns of Barstow, Baker, Primm, and Jean because the Project would not include stations in these visitor-dependent communities. The relocation of the VMF would not change these conclusions regarding economic vitality because the relocation is not anticipated to substantially increase or decrease ridership and the economic composition of the communities listed have not changed significantly since the September 2020 Reevaluation. Therefore, the Sloan VMF would not result in substantial changes in the evaluation of economic vitality impacts disclosed in the DesertXpress EIS or September 2020 Reevaluation.

5.2.3 MITIGATION MEASURES

Voluntary Mitigation Measures GRO-1 and GRO-2 were established in the DesertXpress EIS and revised in the September 2020 Reevaluation. The DesertXpress EIS concluded implementation of the Project would not result in any adverse direct or indirect growth effects and that no mitigation measures would be required. However, DesertXpress Enterprises, LLC proposed the following voluntary mitigation measures to address concerns raised by local jurisdictions regarding potential economic impacts of the Project:

- Voluntary Mitigation Measure GRO-1. Voluntary Applicant Coordination with City of Barstow and San Bernardino County for Employment.
- Voluntary Mitigation Measure GRO-2. Voluntary Applicant Coordination for Land Use Planning.

5.3 FARMLANDS AND GRAZING LANDS

This section evaluates whether the Sloan VMF would result in substantial changes to the evaluation of effects to farmland and grazing land designations (assigned by the DOC, Clark County Comprehensive Plan, and BLM) discussed in the DesertXpress EIS and September 2020 Reevaluation.

5.3.1 REGULATORY UPDATES

FARMLAND

Within Nevada, there are no designated farmlands within or near the Project area as established in the Clark County Comprehensive Plan Conservation Element.

GRAZING LAND

The locations of designated grazing allotments within BLM managed lands within or near the Project area have not changed since the September 2020 Reevaluation.⁵⁸

5.3.2 EFFECTS ANALYSIS

The Sloan VMF would not be located within or near designated farmlands and would therefore not result in the conversion of designated farmlands to non-agricultural use. The Sloan VMF would not result in changes in the evaluation of farmland impacts of the DesertXpress EIS or September 2020 Reevaluation.

The Sloan VMF would not be located within designated grazing land as identified by the BLM Grazing Allotments map but would be in proximity to the Hidden Valley grazing allotment east of the I-15 freeway. Mitigation Measures FAR-2 and FAR-3 would still apply to minimize indirect effects. Thus, the Sloan VMF would not result in substantial changes in the evaluation of grazing land impacts of the DesertXpress EIS.

5.3.3 MITIGATION MEASURES

The following mitigation measures established in the DesertXpress EIS and revised in the September 2020 Reevaluation would avoid adverse effects related to farmlands and grazing lands.

- Mitigation Measure FAR-2: Livestock Access to Water
- Mitigation Measure FAR-3: Fencing and Gate Modifications

5.4 UTILITIES/EMERGENCY SERVICES

This section evaluates whether the Sloan VMF would result in substantial changes to the evaluation of effects to utilities and emergency services discussed in the DesertXpress EIS.

5.4.1 REGULATORY UPDATES

No updates to Federal, state, or local regulation that pertain to the modified Project's effects on utilities and emergency services have occurred since the September 2020 Reevaluation.

5.4.2 EFFECTS ANALYSIS

ELECTRICITY AND GAS

The Sloan VMF would require the use of natural gas and electricity services. Natural gas would be provided by Southwest Gas Corporation (SGC) and electricity would be provided by NV Energy. As evaluated in the DesertXpress EIS, SGC has capacity to serve the existing needs and those of the Project. Mitigation Measure UTIL-1 would still apply to the modified Project to avoid or minimize impacts to electrical providers during operation of the modified Project. Furthermore, DesertXpress Enterprises, LLC is coordinating with electricity providers to ensure the adequacy of regional power delivery systems. Thus, the Sloan VMF would not result in substantial changes in the evaluation of natural gas and electricity impacts of the DesertXpress EIS or September 2020 Reevaluation.

⁵⁸ Bureau of Land Management. 2022. BLM National Grazing Allotments Map Service. Available: <https://landscape.blm.gov/geoportal/rest/document?f=html&id=%7B8C2D42AB-A6B9-4DF7-AD77-E98A1BD8468A%7D>. Accessed: June 2022.

WATER SUPPLY

The Sloan VMF would generate water demand associated with employee operations. Using Las Vegas Valley Water Demand commercial water demand flow rates, estimated demand on an annual basis would be approximately 904.7 acre feet per annum (AFA), but would be within future projections for the service area.⁵⁹ Furthermore, the DesertXpress EIS included Mitigation Measures UTIL-1, UTIL-2, and UTIL-3 to reduce water usage, prepare a water supply assessment for the Sloan VMF, and procure a water commitment from the LVVWD. These mitigation measures would still apply to the Sloan VMF, and therefore the Sloan VMF would not result in substantial changes in the evaluation of water supply impacts of the DesertXpress EIS.

SEWAGE AND WASTEWATER

Operation of the Sloan VMF would not create demand for sewage and wastewater treatment facilities, as it would include its own septic system. The Sloan VMF would not result in substantial changes in the evaluation of wastewater impacts of the DesertXpress EIS or September 2020 Reevaluation.

STORMWATER

The area proposed for the Sloan VMF is largely unimproved at present. The construction and operation of these facilities will convert approximately 27 acres of undeveloped lands to paved and/or built facilities, decreasing permeability and potentially creating stormwater. The Sloan VMF would not change the DesertXpress EIS conclusion regarding stormwater because it would not substantially alter the amount of impervious surface introduced by the overall Project. Mitigation Measures UTIL-4 and UTIL-5 would still apply to minimize impacts to stormwater systems. The Sloan VMF would not result in substantial changes in the evaluation of stormwater impacts of the DesertXpress EIS or September 2020 Reevaluation. Refer to Section 5.8, Hydrology and Water Quality, for a discussion of Project impacts to stormwater during construction.

SOLID WASTE

The DesertXpress EIS identified the Apex Regional Landfill as the landfills that would service the Project in Nevada. The Sloan VMF would generate solid waste due to ongoing uses by employees. Using the assumptions in the DesertXpress EIS, waste generated from the 100 permanent employees for the Sloan VMF is approximately 0.7 tons per day or 255.5 tons annually.⁶⁰ As of 2017, the Apex Landfill was receiving 6,800 tons of waste each day.⁶¹ The addition of 0.7 daily tons associated with the Sloan VMF would have a minimal effect on the landfill's capacity to receive solid waste. The Sloan VMF would not result in substantial changes in the evaluation of solid waste impacts of the DesertXpress EIS or September 2020 Reevaluation.

UTILITY INFRASTRUCTURE CROSSINGS

The Sloan VMF could intersect with utility conveyance systems that were not identified in the DesertXpress EIS or September 2020 Reevaluation. However, the Sloan VMF would not change the DesertXpress EIS conclusions regarding utility infrastructure crossings because Mitigation Measure UTIL-

⁵⁹ Southern Nevada Water Authority. 2020. *2020 Water Resource Plan*.

⁶⁰ The DesertXpress EIS assumes a waste generation rate of 14 pounds of solid waste per employee per day in the Las Vegas area.

⁶¹ State of Nevada. 2017. *Solid Waste Management Plan*.

8 would still apply to the Sloan VMF to avoid or minimize potential adverse effects to water, wastewater, communications, local gas pipelines, and other physical facilities that features of the modified Project would cross. The Sloan VMF would not result in substantial changes in the evaluation of utility infrastructure crossing impacts of the DesertXpress EIS or September 2020 Reevaluation.

EMERGENCY SERVICES

The Sloan VMF would be served by Las Vegas Fire and Rescue (LVFR). As evaluated in the DesertXpress EIS, LVFR, has sufficient staffing levels to serve the Project. Additionally, Mitigation Measures UTIL-6 and UTIL-7 would still apply to the modified Project, including the Sloan VMF, which would require the payment of impact fees for police, fire, and emergency services, and the development and implementation of a comprehensive emergency operations plan. Therefore, the Sloan VMF would not result in substantial changes in the evaluation of emergency services impacts of the DesertXpress EIS or September 2020 Reevaluation.

5.4.3 MITIGATION MEASURES

The following mitigation measures established in the DesertXpress EIS and revised in the September 2020 Reevaluation would avoid adverse effects to utilities and emergency services:

- Mitigation Measure UTIL-1: Payment of connection and or user/service/tipping fees
- Mitigation Measure UTIL-2: Minimize water usage through the incorporation of water saving devices wherever required or feasible; require drought-tolerant landscaping at all facilities
- Mitigation Measure UTIL-3: Obtain a water commitment from the LVVWD during the design phase
- Mitigation Measure UTIL-4: Rail segments within freeway ROWs shall tie into existing freeway stormwater conveyance devices
- Mitigation Measure UTIL-5: Develop appropriate stormwater conveyance structures/systems at station and maintenance facility sites, as well as points along railroad segments where it is not possible to connect to existing systems
- Mitigation Measure UTIL-6: Payment of impact fees for police, fire, and emergency services
- Mitigation Measure UTIL-7: Develop a comprehensive emergency operations plan
- Mitigation Measure UTIL-8: Avoid or minimize conflicts with existing utility infrastructure

5.5 TRAFFIC AND TRANSPORTATION

This section evaluates whether the Sloan VMF would result in substantial changes to the evaluation of effects to traffic and transportation discussed in the DesertXpress EIS and September 2020 Reevaluation.

5.5.1 REGULATORY UPDATES

FEDERAL AND STATE

No updates to Federal, state, or local regulation that pertain to the modified Project's effects on traffic and transportation have occurred since the September 2020 Reevaluation.

5.5.2 EFFECTS ANALYSIS

FREEWAY LEVEL OF SERVICE (LOS)

The relocation of the VMF would increase ramp queues near Sloan. However, as evaluated in the DesertXpress EIS, the Project would have a beneficial effect on traffic conditions from Primm to Sloan. The Sloan VMF would employ approximately 100 employees, which is less than the 400 employees projected for the Victorville OMSF evaluated in the DesertXpress EIS. As such, the Sloan VMF would result in fewer trips, and would not be located in a high traffic volume area, and thus would have a reduced effect on traffic conditions. Therefore, the modified Project would not result in substantial changes in the evaluation of freeway LOS of the DesertXpress EIS or September 2020 Reevaluation.

INTERSECTION LEVEL OF SERVICE

The relocation of the VMF would increase intersection LOS near Sloan. However, as evaluated in the DesertXpress EIS, the Project would have a beneficial effect on traffic conditions from Primm to Sloan. As stated above, the Sloan VMF would generate fewer trips as the Victorville OMSF evaluated in the DesertXpress EIS, and would not be located in a high traffic volume area, and would thus have a minimal effect on traffic conditions. Therefore, the modified Project would not result in substantial changes in the evaluation of intersection LOS of the DesertXpress EIS or September 2020 Reevaluation.

VEHICLE MILES TRAVELED

The Sloan VMF would require approximately 100 employees, which may result in further increases to annual VMT from employee commute trips. However, this increase would not be significant, since the previous estimate used in the September 2020 Reevaluation for annual VMT from employee commute trips was evaluated assuming approximately 1,034 daily employees.⁶² Thus, the modified Project, including the Sloan VMF, would still result in substantial reductions in annual VMT along the I-15 freeway corridor due to diversion from automobiles to rail (approximately 502 million VMT), and would therefore not result in substantial changes in the evaluation of effects to VMT of the DesertXpress EIS or September 2020 Reevaluation.

ROADWAY SAFETY

Highways

While the geographic location of specific safety-related impacts at the Sloan VMF would be different than the Project evaluated in the September 2020 Reevaluation, the nature of these impacts would generally remain unchanged. These impacts could include potential effects related to obstruction of motorists' sight distance, increased severity of run-off road crashes, and visual distractions for motorists (particularly train headlights) during operation of the modified Project, as well as temporary reductions in horizontal and vertical clearances during construction of the Project. However, given the market diversion from automobiles to rail in the I-15 freeway corridor, the modified Project, including the Sloan VMF (and associated roadway modifications) would also result in some beneficial effects to highway safety due to a reduction in collisions. Mitigation Measure TRAF-4 would still be applied to fully mitigate the modified Project's potentially adverse effects on highway safety. Therefore, the Sloan VMF would

⁶² The modified Project conservatively assumes 572 daily employees at the Victor Valley Station and OMSF, and 462 daily employees at the Warm Springs Station, for a total of 1,034 daily employees.

not result in substantial changes in the evaluation of effects to highway safety of the DesertXpress EIS or September 2020 Reevaluation.

Local Streets

While the modified Project would result in added traffic on local streets surrounding the Sloan VMF, an increase in traffic alone would generally not constitute a safety hazard. All improvements would be designed according to accepted industry standards such as the Manual on MUTCD, AASHTO Policy on Geometric Design of Highways and Streets, and the National Association of City Transportation Officials Urban Street Design Guide and would be coordinated with local jurisdictions to ensure conformance with their specific design practices. Thus, the Sloan VMF would not result in substantial changes in the evaluation of local street safety impacts of the DesertXpress EIS or September 2020 Reevaluation.

5.5.3 MITIGATION MEASURES

The following mitigation measure established in the DesertXpress EIS and revised in the September 2020 Reevaluation would avoid adverse effects on traffic and transportation:

- Mitigation Measure TRAF-4: Conduct a Design Review within the Parameters Defined in the Highway Interface Manual

5.6 VISUAL RESOURCES

This section evaluates whether the Sloan VMF would result in substantial changes to the evaluation of aesthetic and visual resources discussed in the DesertXpress EIS and September 2020 Reevaluation.

5.6.1 REGULATORY UPDATES

No updates to Federal regulations governing visual resources have occurred since the September 2020 Reevaluation that would pertain to the Project.

5.6.2 EFFECTS ANALYSIS

CONSTRUCTION

The modified Project proposes 105 acres of TCAs for the Sloan VMF and UPRR. Proposed TCAs would be located adjacent to existing industrial development to the north, the I-15 freeway to the east, and the existing UPRR tracks to the west. Visual impacts from construction activities and TCAs would be minimized through implementation of Mitigation Measures VIS-7 through VIS-10. The Project modifications would not result in substantial changes in the evaluation of construction effects to visual quality of the DesertXpress EIS or September 2020 Reevaluation.

OPERATION

The DesertXpress EIS evaluated visual effects from the implementation of the previously considered OMSF in proximity to the original Victorville Station, and developed Mitigation Measures VIS-3, VIS-4, and VIS-5 to reduce effects to visual quality from this maintenance facility. The Sloan VMF would introduce a facility and various appurtenances, including a train wash station, a train performance monitoring station, a power substation and distribution lines, utility connections, fencing, and facilities for parking. Additionally, a new UPRR rail connection would be implemented to connect the Sloan VMF to the adjacent UPRR rail tracks to the west, requiring between 16 and 34 acres depending on the alternative chosen. As described above, the Sloan VMF and UPRR rail connection would be located in

Segment 6 just west of the I-15 freeway and south of Sloan Road. The DesertXpress EIS determined this area to have medium visual quality and medium viewer sensitivity. However, it did not evaluate effects from visual quality from the introduction of Project features in this location.

The Sloan VMF site is mostly undeveloped, and is characterized by low-lying shrubs, desert soils, and dunes, with adjacent industrial development located north along Sloan Road. The site is located between two existing transportation corridors, with the I-15 freeway adjacent to the east and the existing UPRR rail corridor adjacent to the west. Given that motorists, traveling at freeway speeds, would only view the Sloan VMF and UPRR rail connection for several seconds, and that the site is located adjacent to existing industrial development and transportation infrastructure, the proposed Sloan VMF would be somewhat consistent with the existing character and would only slightly reduce the visual quality. Mitigation Measures VIS-3, VIS-4, and VIS-5 would still apply to minimize impacts to visual quality resulting from the Sloan VMF. These measures shall include coordinating with stakeholder agencies to create a unified aesthetic theme that supports the aesthetic goals of the community, and to collaborate on decisions regarding specific design elements. The aesthetic treatment of the structures shall involve color, texture, and patterns that tie into the Brightline West Project's Project Aesthetic and Landscape Masterplan (PALM), to create a visual link between the structures and other project elements along the corridor while also tying in with the overall unified corridor concept. The Sloan VMF would not result in substantial changes in the evaluation of permanent effects to visual quality disclosed in the DesertXpress EIS or September 2020 Reevaluation.

5.6.3 MITIGATION MEASURES

The following mitigation measures established in the DesertXpress EIS and revised in the September 2020 Reevaluation would avoid adverse effects to visual resources:

- Mitigation Measure VIS-1: Rail Features
- Mitigation Measure VIS-2: Victor Valley Station Features
- Mitigation Measure VIS-3: Maintenance Facility Features
- Mitigation Measure VIS-4: Contour Grading
- Mitigation Measure VIS-5: Light and Glare Reduction
- Mitigation Measure VIS-6: Educational Displays
- Mitigation Measure VIS-7: Construction Site Management
- Mitigation Measure VIS-8: Construction Site Lighting
- Mitigation Measure VIS-9: Visual Screening
- Mitigation Measure VIS-10: Freeway Landscaping

5.7 CULTURAL RESOURCES

This section evaluates whether the Sloan VMF would result in substantial changes to the evaluation of effects to archaeological resources and historic built resources discussed in the DesertXpress EIS and September 2020 Reevaluation.

5.7.1 REGULATORY UPDATES

No updates to Federal regulations governing cultural resources have occurred since the September 2020 Reevaluation that would pertain to the Project. FRA is the lead federal agency for compliance with Section 106 of the NHPA for the Project.

5.7.2 EFFECTS ANALYSIS

As described in Section 4.7, FRA conducted a detailed analysis of the Project's potential effects to cultural resources, which also informed FRA's consultation under Section 106 of the NHPA. The Project could result in effects to cultural resources by affecting cultural setting (e.g., introducing new visual or noise effects) and by physical destruction or alteration. Through consultation, FRA was informed that the Project could encounter cultural resources, specifically archeological resources, that are of cultural and religious significance to federally recognized tribes. These resources may not be obvious from the surface or existing historical records and may require archeological investigation and further consultation to identify.

ARCHAEOLOGICAL RESOURCES

The proposed Sloan VMF would be located on BLM land in Nevada. FRA coordinated with BLM to determine whether any archeological resources were previously identified within the area of the Sloan VMF footprint. FRA completed an archeological inventory (including intensive pedestrian and subsurface survey, records search, and Tribal consultation) of the portion within the current Area of Potential Effect (APE) Area of Direct Impact (ADI) (i.e., ROW) and limited observation of the portion within the APE Area of Indirect Impact (AII) identified approximately 30 archeological sites: light lithic scatters and historic period refuse dumps similar in nature to those identified at the previously considered Dale Evans OMSF site. The archeological inventory of the Sloan VMF included a records search and visual observation from a distance of where it overlaps with the current APE-ADI and APE-AII. Based on these results, FRA does not expect to encounter any significant archeological resources that would be affected by the Sloan VMF.⁶³

BUILT HISTORIC RESOURCES

A built environment review was conducted for the Sloan VMF site, which included analysis of historic US Geological Survey maps between 1910 and 1960, historic aerial photographs of the site, and Google Earth. The review determined that no historic structures, roads, or trails were identified within the Sloan VMF footprint.⁶⁴

5.7.3 MITIGATION MEASURES

The following mitigation measures established in the DesertXpress EIS and revised in the September 2020 Reevaluation would avoid, minimize, or resolve adverse effects to cultural resources:

- Mitigation Measure CR-1: Avoidance of Archeological Resources
- Mitigation Measure CR-2: Evaluation
- Mitigation Measure CR-3: Treatment
- Mitigation Measure CR-4: Monitoring
- Mitigation Measure CR-5: Preconstruction Meeting and Worker Awareness Training

⁶³ FRA will conduct any required archeological investigation and evaluation efforts of this area in accordance with the 2023 PA executed for the Project. If FRA determines the Project will result in adverse effects to historic properties, FRA will resolve those effects through the procedures established in the 2023 PA.

⁶⁴ Please see above.

- Mitigation Measure CR-6: Human Remains and Stop Work Requirement
- Mitigation Measure CR-7: Annual Reporting
- Mitigation Measure CR-8: Quarterly Reporting

5.8 HYDROLOGY AND WATER QUALITY

This section evaluates whether the Sloan VMF would result in substantial changes to the evaluation of effects to hydrology and water quality discussed in the DesertXpress EIS and September 2020 Reevaluation.

5.8.1 REGULATORY UPDATES

No updates to state or local regulation that pertain to the modified Project's effects on hydrology and water quality have occurred since the September 2020 Reevaluation. The environmental analysis conducted in the DesertXpress EIS, the September 2020 Reevaluation, and this Reevaluation evaluates effects of hydrology, water quality, drainage patterns, and stormwater runoff to aquatic resources throughout the Project area regardless of WOTUS jurisdiction. Therefore, there are no Federal regulations that would result in substantial changes to construction or operation of the Project.

5.8.2 EFFECTS ANALYSIS

AQUATIC FEATURES WITHIN THE MODIFIED FOOTPRINT

The DesertXpress EIS and September 2020 Reevaluation identified aquatic resources that would be affected by implementation of the Project. The drainage features within the rail alignment evaluated in the DesertXpress EIS and September 2020 Reevaluation were classified as "Riverine Ephemeral."⁶⁵ Riverine Ephemeral drainage features were evaluated for potential impacts resulting from implementation of Project features, including station sites, ancillary features, TCAs, and the rail alignment. Therefore, impacts to these features are not considered a new type of impact resulting from the Project modifications.

The Sloan VMF would require 246 acres of permanent footprint and 105 acres of temporary footprint. The permanent and temporary Sloan VMF footprint would encounter numerous hydrological features, shown in Figure 5-1, which are comprised of ephemeral drainages and ditches. The exact number of linear feet impacted and the location of such impacts may vary based on final design and the implementation of mitigation measures. Because these drainage features are similar in classification and quality to those features previously evaluated, impacts to these features are not considered a new type of impact resulting from the Project modifications. The Sloan VMF would not result in substantial changes in the evaluation of alteration to existing drainage patterns from construction of the DesertXpress EIS or September 2020 Reevaluation.

⁶⁵ Riverine Ephemeral features are defined in: Cowardin, L.M., V. Carter, F.C. Golet & E.T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. USDI Fish & Wildlife Service, Biological Services Program. FWS/OBS-79/31. 103 pp

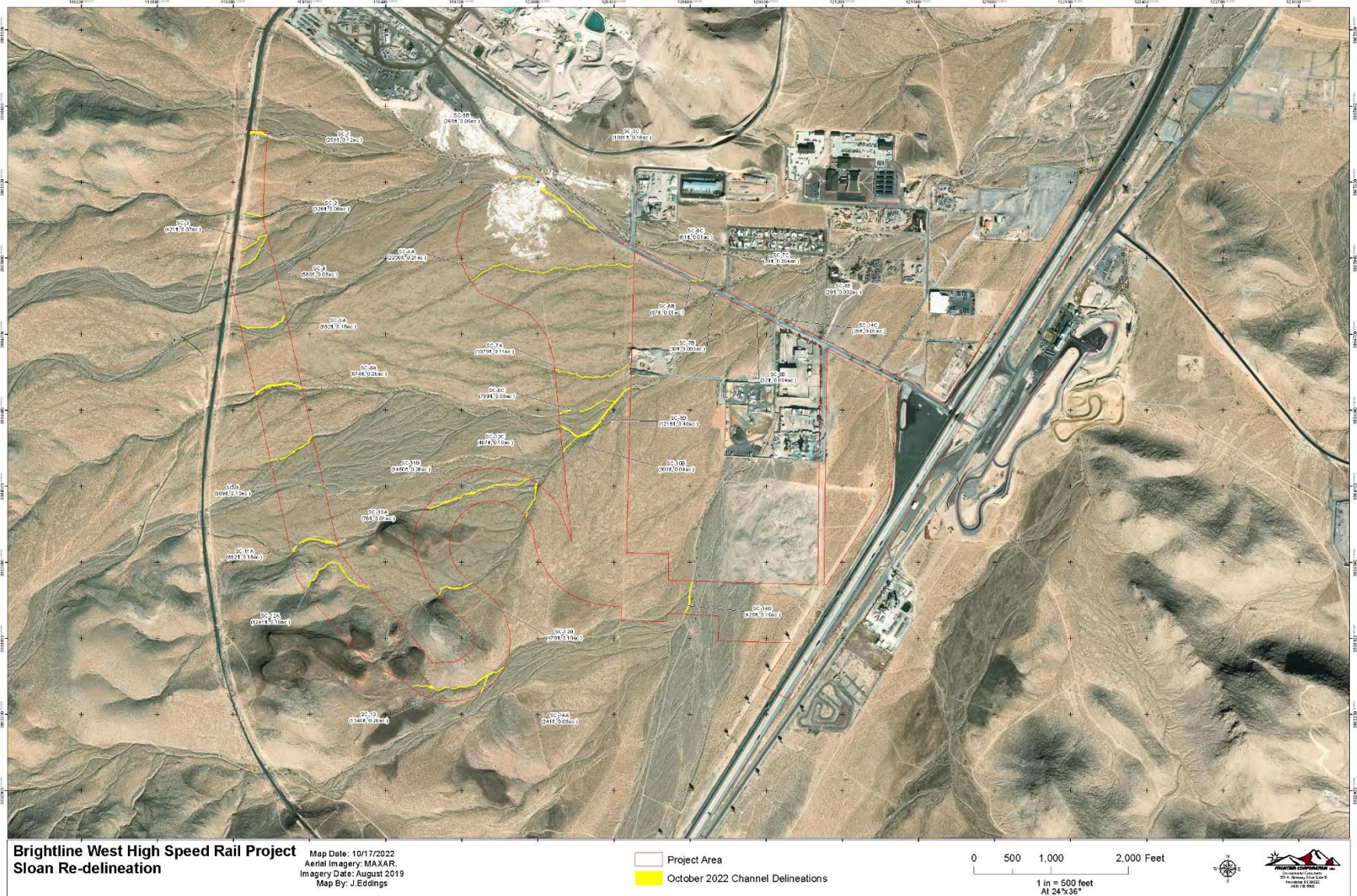


Figure 5-1 Sloan VMF Site – Aquatic Resources Delineation Map

WATER QUALITY

The DesertXpress EIS and September 2020 Reevaluation identified that construction-period water quality effects would result from increased erosion and sedimentation during grading and excavation, as well as from accidental spills or improper storage of hazardous materials. Additionally, operational water quality effects would result from polluted stormwater runoff generated at the stations and maintenance facilities.

Construction and operations activities for the Sloan VMF would occur within a similar scope to those anticipated for the previously evaluated maintenance facilities assessed in the DesertXpress EIS and September 2020 Reevaluation. Additionally, the Sloan VMF would be located in a similar general area to maintenance facilities previously evaluated, adjacent to the I-15 freeway ROW. The DesertXpress EIS and September 2020 Reevaluation concluded that Mitigation Measures HYD-1 through HYD-4 would minimize adverse effects to hydrological resources during construction and operation; these mitigation measures would still apply to the Sloan VMF. Therefore, the Sloan VMF would not result in substantial changes in the evaluation of water quality impacts of the DesertXpress EIS or September 2020 Reevaluation.

ALTERATION OF EXISTING DRAINAGE PATTERNS

Construction

The DesertXpress EIS determined that Project construction would potentially alter drainage patterns through the exposure of soils susceptible to erosion during earthmoving activities. The September 2020 Reevaluation determined the September 2020 modifications would require a slightly shorter construction period and less earthmoving activity since the overall Project footprint would be reduced.

The Sloan VMF would require an additional 105 acres of temporary footprint for the modified Project (as evaluated in Section 4.0). These newly considered TCAs would be located in the same general area previously evaluated in the DesertXpress EIS and September 2020 Reevaluation, within 1.5 miles from the I-15 freeway corridor. Mitigation Measure HYD-2 would still be applied to reduce impacts on existing drainage patterns during construction. Therefore, the Sloan VMF would not result in substantial changes in the evaluation of alteration to existing drainage patterns from construction compared with the DesertXpress EIS or September 2020 Reevaluation.

Operation

The DesertXpress EIS determined that the alignment and ancillary features would cross numerous ephemeral hydrological features between Apple Valley and Las Vegas and could alter drainage patterns along the alignment.

As depicted in Figure 5-1, the Sloan VMF footprint would cross numerous hydrological features, introducing approximately 246 acres of permanent footprint. These hydrological features are non-jurisdictional waters not currently subject to the USACE's permitting regulations. Mitigation Measure HYD-5 would be applied to reduce impacts from the Sloan VMF on existing drainage patterns. The Sloan VMF would not result in substantial changes in the evaluation of alteration to existing drainage patterns from operations compared with the DesertXpress EIS or September 2020 Reevaluation.

FLOOD FLOW IMPEDIMENT

Since the September 2020 Reevaluation, the 1 percent annual chance floodplain boundaries have not changed.⁶⁶ The Sloan VMF would not encounter designated 1 percent annual chance flood plains. The Sloan VMF would not result in changes in the evaluation of floodplains of the DesertXpress EIS or September 2020 Reevaluation.

ADDITIONAL SOURCES OF STORMWATER RUNOFF

Construction

The DesertXpress EIS determined that Project construction could introduce new sources of polluted stormwater runoff through the release of construction-related chemicals, especially from TCAs. The September 2020 Reevaluation established the reduction of the overall 2020 Project footprint compared to the DesertXpress EIS Project footprint would allow for a slightly shorter construction period and a reduction in the use of construction-related chemicals. Reduction of the intensity of the construction activities during the period would reduce the potential for chemical releases by shortening the amount and time chemicals would be stored and used within the construction footprint, resulting in a beneficial effect.

While the Sloan VMF would require additional permanent and temporary footprint, the overall modified Project footprint would not be significantly larger than the original project footprint or the footprint evaluated in the September 2020 Reevaluation, because of footprint reductions in other areas. Therefore, the intensity of the construction activities, which could affect the potential for chemical releases and the amount and time chemicals would be stored and used within the construction footprint, would not substantially differ. Mitigation Measures HYD-2, HYD-3, and HYD-4 would still be applied to reduce impacts from chemical releases during construction. The Sloan VMF would not result in substantial changes in the evaluation of stormwater runoff during construction, compared with the DesertXpress EIS or September 2020 Reevaluation.

Operation

The DesertXpress EIS determined that new impervious surfaces at the station and maintenance facilities could produce increased stormwater runoff. The Sloan VMF would introduce approximately 27 acres of impervious surface at the proposed site. The Sloan VMF would not change the September 2020 Reevaluation's conclusions regarding polluted runoff because the quantity of impervious surface areas included in the modified Project, including the Sloan VMF, would not substantially differ from the surface areas evaluated in the September 2020 Reevaluation or DesertXpress EIS. Therefore, the Sloan VMF would not result in substantial changes in the evaluation of stormwater runoff during operations, compared with the DesertXpress EIS or September 2020 Reevaluation.

REDUCTION IN GROUNDWATER AVAILABILITY

Mitigation Measure HYD-10, developed in the DesertXpress EIS and revised in the September 2020 Reevaluation, would still apply to the Project including the Sloan VMF, and would require water supply for construction, operation, and maintenance activities be obtained from existing water purveyors instead of surface or groundwater resources. Therefore, the Sloan VMF would not result in substantial

⁶⁶ California Department of Water Resources. 2022. *Best Available Map*. <https://gis.bam.water.ca.gov/bam/>. Accessed: April 2022; Federal Emergency Management Agency. 2021. *FEMA Flood Map Service Center*. <https://msc.fema.gov/portal/home>. Accessed: April 2022.

changes in the evaluation of groundwater availability of the DesertXpress EIS or September 2020 Reevaluation.

WATERS OF THE UNITED STATES

The Sloan VMF is located within 1.5 miles from the I-15 freeway corridor and would encounter ephemeral streams (see Figure 5-1). These hydrological features are non-jurisdictional waters not currently subject to the USACE's permitting regulations. Mitigation Measure HYD-5 would still apply to reduce hydraulic impacts where the Sloan VMF would encounter ephemeral drainages. Therefore, the Sloan VMF would not result in substantial changes in the evaluation of WOTUS impacts as disclosed in the DesertXpress EIS or September 2020 Reevaluation.

5.8.3 MITIGATION MEASURES

The following mitigation measures established in the DesertXpress EIS and revised in the September 2020 Reevaluation would avoid adverse effects to hydrology and water quality:

- Mitigation Measure HYD-1: Incorporate Site-Specific Water Treatment Devices
- Mitigation Measure HYD-2: Implement Construction-Related Best Management Practices
- Mitigation Measure HYD-3: Comply with the National Pollutant Discharge Elimination System (NPDES) Construction General Permit
- Mitigation Measure HYD-4: Implement Spill Prevention, Control, and Countermeasure Plan
- Mitigation Measure HYD-5: Proper Design of Drainage Systems
- Mitigation Measure HYD-6: Reduce Encroachment into the 100-Year Floodplain.
- Mitigation Measure HYD-7: No Storage of Construction Equipment or Materials within the 100-Year Floodplain
- Mitigation Measure HYD-9: Minimize Impacts of Temporary Construction Areas on Water Resources
- Mitigation Measure HYD-10: Minimize Impacts on Water Availability
- Mitigation Measure BIO-1: Conduct Mandatory Environmental Awareness Training Program
- Mitigation Measure BIO-3: Conduct Construction Monitoring
- Mitigation Measure BIO-5: Confine Construction Equipment to a Designated Work Zone (Including Access Roads) at Each Project Site

5.9 GEOLOGY AND SOILS

This section evaluates whether the Sloan VMF would result in substantial changes to the evaluation of effects to geology and soils discussed in the DesertXpress EIS and September 2020 Reevaluation.

5.9.1 REGULATORY UPDATES

FEDERAL AND STATE

No updates to state or local regulation that pertain to the modified Project's effects on geology and soils have occurred since the September 2020 Reevaluation.

5.9.2 EFFECTS ANALYSIS

SURFACE FAULT RUPTURE AND GROUND SHAKING

As previously evaluated in the DesertXpress EIS, potential rupture of faults that cross the study area would manifest in relative displacement of ground across the fault surface. Typically, since the active faults crossing the alignment are strike-slip faults, the displacement would be anticipated in a horizontal direction, but some vertical component of offset may occur. Fault rupture damage could include offset damage to portions of at-grade rail lines where they cross the fault rupture; damage to structural elements of the rail line such as aerial guideways or bridges that are placed across a fault rupture; or damage to facilities built across a fault rupture. However, faults in the Las Vegas Valley, including where the Sloan VMF would be located, are indicated as active on the geologic maps reviewed, but the activity is attributed to subsidence, and not tectonic activity, and the potential for surface rupture due to an earthquake is considered low. Additionally, Mitigation Measures GEO-1 and GEO-2 would apply to the Sloan VMF reduce impacts from seismic hazards. Thus, the Sloan VMF would not result in substantial changes in the evaluation of surface fault rupture and ground shaking impacts of the DesertXpress EIS or September 2020 Reevaluation.

LIQUEFACTION, SETTLEMENT, CORROSIVE SOILS, EXPANSIVE SOILS, LANDSLIDES, AND SHALLOW GROUNDWATER

The modified Project includes new permanent footprint for the Sloan VMF. However, the modified Project would not change the conclusions regarding soil hazards because these areas of new footprint would be near areas previously analyzed in the DesertXpress EIS and September 2020 Reevaluation, encountering similar soil and groundwater conditions. Additionally, Mitigation Measures GEO-3, GEO-5, GEO-6, GEO-7, and GEO-10 would apply to the Sloan VMF to address the need for site-specific evaluation of soil and groundwater conditions. Thus, the Sloan VMF would not result in substantial changes in the evaluation of liquefaction, settlement, corrosive soil, expansive soil, landslide, or shallow groundwater impacts of the DesertXpress EIS or September 2020 Reevaluation.

DAM INUNDATION

Inundation has the potential to occur due to dam failure. The Sloan VMF would not be located in an area with the potential for dam inundation.

GROUND FISSURES

The DesertXpress EIS identified the Las Vegas area, including the Sloan VMF site, as susceptible to ground fissures. However, Mitigation Measure GEO-12 would still be applied to reduce the impact of ground fissures, and the Sloan VMF would not result in substantial changes in the evaluation of ground fissure impacts of the DesertXpress EIS or September 2020 Reevaluation.

CALICHE/HARD ROCK EXCAVATION

The DesertXpress EIS identified Quaternary alluvium in the desert of southern Nevada contains scattered layers of caliche will likely be encountered during construction of the Project. The Sloan VMF would not change the DesertXpress EIS conclusions regarding caliche and hard rock excavation because the Project would remain of a similar scope and geographic location. Thus, the Sloan VMF would not result in substantial changes in the evaluation of caliche and hard rock excavation impacts of the DesertXpress EIS or September 2020 Reevaluation.

5.9.3 MITIGATION MEASURES

The following mitigation measures established in the DesertXpress EIS and revised in the September 2020 Reevaluation would avoid adverse geology and soils effects.

- Mitigation Measure GEO-1: Surface Fault Rupture
- Mitigation Measure GEO-2: Ground Shaking
- Mitigation Measure GEO-3: Liquefaction
- Mitigation Measure GEO-4: Dam Inundation
- Mitigation Measure GEO-5: Settlement
- Mitigation Measure GEO-6: Corrosive Soils
- Mitigation Measure GEO-7: Expansive Soils
- Mitigation Measure GEO-8: Landslides
- Mitigation Measure GEO-9: Caliche/Hard Rock Excavation
- Mitigation Measure GEO-10: Shallow Groundwater
- Mitigation Measure GEO-12: Ground Fissures

5.10 PALEONTOLOGICAL RESOURCES

This section evaluates whether the Sloan VMF would result in substantial changes to the evaluation of effects to paleontological resources discussed in the DesertXpress EIS and September 2020 Reevaluation.

5.10.1 REGULATORY UPDATES

FEDERAL AND STATE

No updates to state or local regulation that pertain to the modified Project's effects on paleontological resources have occurred since the September 2020 Reevaluation.

5.10.2 EFFECTS ANALYSIS

The scale and severity of impacts from the Sloan VMF would be minor. While the Sloan VMF would introduce Project footprint not considered in the DesertXpress EIS or September 2020 Reevaluation, this new footprint would be relatively minimal and would be constructed over previously evaluated geologic units. Additionally, Mitigation Measures CR-7 through CR-13 would still apply to minimize impacts on paleontological resources from the Project. Thus, the Project modifications would not result in substantial changes in the evaluation of paleontological impacts of the DesertXpress EIS or September 2022 Reevaluation.

5.10.3 MITIGATION MEASURES

The following mitigation measures established in the DesertXpress EIS and revised in the September 2020 Reevaluation would avoid adverse effects to paleontological resources:

- Mitigation Measure CR-7: Annual Reporting
- Mitigation Measure CR-8: Quarterly Reporting
- Mitigation Measure CR-9: Further Evaluation of Geologic Units
- Mitigation Measure CR-10: Preconstruction Meeting and Worker Awareness Training
- Mitigation Measure CR-11: Paleontological Monitoring

- Mitigation Measure CR-12: Stop Work Requirement
- Mitigation Measure CR-13: Fossil Recovery and Curation

5.11 HAZARDOUS MATERIALS

This section evaluates whether the Sloan VMF would result in substantial changes to the evaluation of effects to hazardous materials discussed in the DesertXpress EIS and September 2020 Reevaluation.

5.11.1 REGULATORY UPDATES

FEDERAL

No updates to federal or state regulations that pertain to the modified Project's effects on hazardous materials have occurred since the September 2020 Reevaluation.

5.11.2 EFFECTS ANALYSIS

SITES OF ENVIRONMENTAL CONCERN

The Sloan VMF may encounter new sites of environmental concern. However, the sites would be unlikely to result in new types or higher quantities of hazardous material effects that were not evaluated in the DesertXpress EIS or September 2020 Reevaluation. The DesertXpress EIS also developed Mitigation Measures HAZ-2 and HAZ-4 to reduce potential hazardous material impacts associated with contamination encountered during Project construction and would apply to construction of the Sloan VMF. Thus, the Sloan VMF would not result in substantial changes in the evaluation of sites of environmental concern impacts of the DesertXpress EIS or September 2020 Reevaluation.

UNIDENTIFIED HAZARDOUS MATERIALS

The DesertXpress EIS determined that the Project could encounter previously unidentified hazardous materials during construction. The Sloan VMF would not change the DesertXpress EIS conclusions regarding unidentified hazardous materials because it would be constructed in similar locations as analyzed in the DesertXpress EIS and September 2020 Reevaluation. Additionally, since the modified Project footprint has not changed substantially, the scale, location, and severity of impacts from unidentified hazardous materials would be similar to those previously identified in the DesertXpress EIS and September 2020 Reevaluation. Furthermore, Mitigation Measures HAZ-3 and HAZ-4 would still be applied to address risks associated with unidentified hazardous materials. Thus, the Sloan VMF would not result in substantial changes in the evaluation of unidentified hazardous material impacts of the DesertXpress EIS or September 2020 Reevaluation.

BUILDINGS CONSTRUCTED BEFORE 1980

The Sloan VMF site is currently undeveloped, and therefore demolition would not be required. Therefore, there would be no risk of exposure of the public and/or the environment to hazardous materials, such as lead based paint and asbestos containing materials. The Sloan VMF would not result in substantial changes in the evaluation of impacts from buildings constructed before 1980 of the DesertXpress EIS or September 2020 Reevaluation.

NATURALLY OCCURRING ASBESTOS AND ERIONITE

NOA and erionite are naturally occurring hazardous materials with the potential to occur in the Project vicinity that were not considered in the DesertXpress EIS but were evaluated in the September 2020

Reevaluation. NDOT informed FRA that the presence of NOA could be found in certain rock types present in Nevada, given NDOT's knowledge of projects that have occurred since the DesertXpress EIS.

The September 2020 Reevaluation assessed two sections of the September 2020 Project alignment overlaying rock types with potential to contain NOA and erionite. The first section was at the south end of Ivanpah Valley south of Jean, which exhibited a low-to-moderate risk for NOA, and the second section was located approximately three miles north of Jean, which exhibits a moderate-to-high risk for erionite. Based on these findings, NOA and erionite were determined to be unlikely to occur within the September 2020 Project footprint. The Sloan VMF site is located approximately 9 miles north from the nearest location of rock types potentially containing NOA and erionite, and thus would not occur near these previously evaluated areas. As such, the Sloan VMF is not anticipated to encounter NOA and erionite. Thus, the Sloan VMF would not result in substantial changes in the evaluation of NOA and erionite of the September 2020 Reevaluation.

5.11.3 MITIGATION MEASURES

The following mitigation measures identified in the DesertXpress EIS would avoid adverse hazardous material effects:

- Mitigation Measure HAZ-1: Structures Built Prior to 1980
- Mitigation Measure HAZ-2: Contaminated Soil and/or Groundwater
- Mitigation Measure HAZ-3: Previously Unidentified Hazardous Materials
- Mitigation Measure HAZ-4: Hazardous Material Disposal
- Mitigation Measure HAZ-5: Operationally Generated Hazardous Materials

5.12 AIR QUALITY AND GLOBAL CLIMATE CHANGE

This section evaluates whether the Sloan VMF would result in substantial changes to the evaluation of effects on air quality and global climate change discussed in the DesertXpress EIS and September 2020 Reevaluation. As previously established in the September 2020 Reevaluation, the September 2020 Project modifications resulted in fewer criteria pollutants and greenhouse gas (GHG) emissions during construction and operation compared to the evaluation of air quality and global climate change disclosed in the DesertXpress EIS due to reductions in proposed construction activities and the overall Project footprint.

5.12.1 REGULATORY UPDATES

No updates to Federal, California state, or local regulations that pertain to the modified Project's effects on energy have occurred since the September 2020 Reevaluation. The only relevant regulatory update since September 2020 is the passing of Nevada Senate Bill 448 in June 2021. This law advances the energy portfolio requirements for the state of Nevada, requiring utilities to forecast a path to achieve an 80 percent reduction in carbon dioxide emissions from 2005 levels by 2030, facilitating Nevada's goal to reach 100 percent renewable electricity generation by 2050.⁶⁷ This regulatory update would not result in substantial changes in the evaluation of effects to air quality and global climate change disclosed in the September 2020 Reevaluation.

⁶⁷ Nevada Legislature. 2021. *SB448*. <https://www.leg.state.nv.us/App/NELIS/REL/81st2021/Bill/8201/Text>. Accessed April 2022.

5.12.2 EFFECTS ANALYSIS

CONSTRUCTION

Emissions associated with the Sloan VMF would be temporary and would cease when construction activities are complete. Since the emissions intensity of equipment and trucks varies by year and trend down over time due to fleet turnover (i.e., emission factors for construction equipment were higher in 2020 than current emissions expected in 2022), it is expected that emissions from individual pieces of off-road equipment, passenger vehicles, and trucks would be cleaner and emit fewer criteria pollutants and GHGs during construction of the modified Project. Additionally, continuous updates to Federal and state plans, policies, regulations, and Eos are still being introduced that clarify new, or expand upon previous air quality and GHG emission reduction goals, such as Nevada Senate Bill 448 (see Section 5.12.1). The benefits of these regulations and policies to the emissions generated during Sloan VMF construction would be realized throughout the construction period. Additionally, Mitigation Measures AQ-1, AQ-3, and AQ-5 would still apply to reduce construction air quality effects from the Sloan VMF. Thus, the Sloan VMF would not result in substantial changes in the evaluation of construction-period air quality and GHG emission impacts of the DesertXpress EIS or September 2020 Reevaluation.

OPERATION

Energy Demand Emissions

The Sloan VMF would be utilized for storing and mobilizing trains for daily operations. The anticipated annual electricity demand for the modified Project, including the Sloan VMF, is not anticipated to change significantly from what was evaluated in the September 2020 Reevaluation, since the buildout level of operations and train activity would not differ substantially. Therefore, the Sloan VMF would not result in substantial changes in the evaluation of operational air quality or GHG emission impacts of the DesertXpress EIS or September 2020 Reevaluation.

Carbon Monoxide Concentrations

The Sloan VMF will be a permanent workplace for approximately 100 employees related to the maintenance of the Brightline West train fleet. The September 2020 Reevaluation established that the modified Project would not result in operational CO hotspot formation conditions at the station sites. It is reasonable to assume the proposed stations would result in relatively more traffic congestion and CO emissions at nearby roadways and intersections from potential passengers driving to access the passenger stations, when compared with the Sloan VMF from permanent employees driving to work. Therefore, it is not anticipated the Sloan VMF would result in substantial changes in the evaluation of CO emission impacts of the DesertXpress EIS or September 2020 Reevaluation.

5.12.3 MITIGATION MEASURES

5.13 NOISE AND VIBRATION

This section evaluates whether the Sloan VMF would result in substantial changes to the evaluation of effects to noise and vibration sensitive receptors discussed in the DesertXpress EIS and September 2020 Reevaluation.

5.13.1 REGULATORY UPDATES

FEDERAL AND STATE

No updates to federal or state regulations that pertain to the modified Project's effects on noise and vibration quality have occurred since the September 2020 Reevaluation.

5.13.2 EFFECTS ANALYSIS

CONSTRUCTION NOISE

The Sloan VMF would require 105 acres of temporary south of Sloan near Segment 6, but would not impact sensitive receivers as there are none located within 400 feet of the Sloan VMF footprint, the maximum distance in which construction activities could result in noise effects, as disclosed in the September 2020 Reevaluation. Construction techniques have not changed, and TCAs would be restored and vacated upon completion of construction. Additionally, Mitigation Measure NV-10 would still apply to minimize construction noise effects from the Project to sensitive receivers. The Project modifications would not result in substantial changes in the evaluation of construction noise impacts of the DesertXpress EIS or September 2020 Reevaluation.

CONSTRUCTION VIBRATION

The Sloan VMF require 105 acres of temporary footprint south of Sloan near Segment 6 but would not impact sensitive receivers as there are none located within 50 feet from the geometric center of the worksite. Construction techniques have not changed, and TCAs would be restored and vacated upon completion of construction. Additionally, Mitigation Measure NV-10 would still apply to minimize construction vibration effects from the Project to sensitive receivers. The Project modifications would not result in substantial changes in the evaluation of construction noise impacts of the DesertXpress EIS or September 2020 Reevaluation.

HIGH-SPEED RAIL NOISE

There are no sensitive receivers within 180 feet (the noise contour for undeveloped areas established in the DesertXpress EIS) from the Sloan VMF. Additionally, Mitigation Measures NV-1, NV-3, and NV-4 would still apply to minimize potential noise effects from high-speed rail operations. Thus, the Project modifications would not result in substantial changes in the evaluation of operational noise impacts of the DesertXpress EIS or September 2020 Reevaluation.

TRAFFIC NOISE

The Sloan VMF would employ approximately 100 workers and as such, would not introduce enough cars as to generate a substantial amount of noise associated with traffic. Therefore, the Project modifications would not result in substantial changes in the evaluation of traffic noise impacts of the DesertXpress EIS or September 2020 Reevaluation.

OPERATIONAL VIBRATION

The Sloan VMF would not result in new vibration impacts since these modifications would not be in close proximity to existing sensitive receivers. Thus, the Project modifications would not result in substantial changes in the magnitude of operational vibration impacts of the DesertXpress EIS or September 2020 Reevaluation.

5.13.3 MITIGATION MEASURES

The following mitigation measures established in the DesertXpress EIS and revised in the September 2020 Reevaluation would avoid adverse effects from noise and vibration:

- Mitigation Measure NV-1: Noise Barriers
- Mitigation Measure NV-3: Building Sound Insulation
- Mitigation Measure NV-4: Property Acquisitions or Easements
- Mitigation Measure NV-10: Construction Noise and Vibration Measures

5.14 ENERGY

This section evaluates whether the Sloan VMF would result in substantial changes to the evaluation of effects from construction-related energy consumption, operational energy consumption, and peak-period electricity demand discussed in the DesertXpress EIS and September 2020 Reevaluation. As previously established in the September 2020 Reevaluation, the September 2020 Project modifications did not result in substantial changes to the evaluation of energy impacts disclosed in the DesertXpress EIS.

5.14.1 REGULATORY UPDATES

No updates to Federal, California state, or local regulations that pertain to the modified Project's effects on energy, including the Sloan VMF, have occurred since the September 2020 Reevaluation. The only relevant regulatory update since September 2020 is the passing of Nevada Senate Bill 448 in June 2021. This law advances the energy portfolio requirements for the state of Nevada, requiring utilities to forecast a path to achieve an 80 percent reduction in carbon dioxide emissions from 2005 levels by 2030, facilitating Nevada's goal to reach 100 percent renewable electricity generation by 2050.⁶⁸ Regional transition from fossil fuels could result in a slightly lower proportional energy savings resulting from the Project; however, this would not result in substantial changes in the evaluation of energy impacts of the DesertXpress EIS or September 2020 Reevaluation.

5.14.2 EFFECTS ANALYSIS

CONSTRUCTION-RELATED ENERGY CONSUMPTION

It is reasonable to assume that the Sloan VMF would require less construction-related energy consumption than the proposed stations, as the total permanent footprint of the facility and UPRR connection would be 246 acres, and the permanent footprint required for the stations is approximately 409 acres (Victor Valley Station and Warm Springs Station are approximately 300 acres and 109 acres, respectively). As disclosed in the September 2020 Reevaluation, of the approximately 2.4 million MMBTU required for construction, approximately 0.16 million MBTU, or 6.5 percent of the total construction-related energy expenditure for the modified Project would be required for station construction. Thus, it is not anticipated that the Sloan VMF would substantially increase the total anticipated energy consumption for constructing the modified Project and would not result in substantial changes in the evaluation of energy impacts from construction compared with the DesertXpress EIS or September 2020 Reevaluation.

⁶⁸ Nevada Legislature. 2021. *SB448*. <https://www.leg.state.nv.us/App/NELIS/REL/81st2021/Bill/8201/Text>. Accessed April 2022.

OPERATIONAL ENERGY CONSUMPTION

Operational energy consumption compares the Project's anticipated energy usage against the energy uses of other transportation modes along the Project corridor (e.g., automobiles). This evaluation calculates the reduction in VMT that would occur with implementation of the Project. The September 2020 Reevaluation established the Project is anticipated to result in a net reduction of approximately 502 million-mile VMT annually. Estimates regarding annual ridership diverted from automobiles during the build out year have not changed under the Project modifications, and the modified Project, including the Sloan VMF, would still divert a substantial amount of automobiles to rail within the I-15 freeway corridor. The Sloan VMF would not result in substantial changes in the evaluation of operational energy consumption of the DesertXpress EIS or September 2020 Reevaluation.

PEAK-PERIOD ELECTRICITY DEMAND

It is assumed the Sloan VMF would not result in significant changes to operational energy use for the modified Project, since the length of the alignment and ridership projections which would represent the significant majority of operational energy use would remain consistent with the September 2020 Project. Thus, it is anticipated that the previously assumed maximum hourly peak energy demand of 44.2 MW from the September 2020 Reevaluation would not significantly change. Assuming all energy required for the Project is drawn from Nevada, the Project would utilize approximately 0.09 percent of the total regional energy demand. Thus, the modified Project would not adversely impact regional energy supply. Thus, the Sloan VMF would not result in substantial changes in the evaluation of peak-period electricity demand impacts of the DesertXpress EIS or September 2020 Reevaluation.

5.14.3 MITIGATION MEASURES

The DesertXpress EIS and September 2020 Reevaluation both determined mitigation measures would not be necessary because the Project would result in an overall reduction in total energy consumption. As the modified Project, including the Sloan VMF, would still result in an overall reduction in total energy consumption, no mitigation measures would be applied.

5.15 BIOLOGICAL RESOURCES

This section assesses evaluates whether the Sloan VMF would result in substantial changes to the evaluation of effects to biological resources discussed in the DesertXpress EIS and September 2020 Reevaluation. Refer to Attachment C, *Biological Resources Technical Report*, for further discussion of effects to biological resources in proximity to the modified Project, including the Sloan VMF.

5.15.1 REGULATORY UPDATES

Following shortly after the September 2020 Reevaluation, on May 6, 2021, the USFWS provided concurrence that re-initiation of formal consultation was unnecessary because none of the proposed changes met the re-initiation criteria at 50 CFR 402.16. The USFWS also acknowledged that Southern California Edison would apply to BLM for separate authorization for the construction of the two electrical substations and transmission lines that would supply power to the rail line. In addition, the USFWS issued revised desert tortoise protective measures for the Project's Biological Opinion (FWS-SB-20B0244-21TA0969) based on the modified Project 2020 footprint evaluated in the September 2020 Reevaluation. These revised protective measures were incorporated into the September 2020 Reevaluation. Re-initiation of formal consultation under Section 7 was unnecessary because impacts on

species listed as threatened or endangered and critical habitat were substantially reduced, and no new impacts would occur as a result of the Project modifications that were not previously addressed in the Biological Opinion issued for the Project.

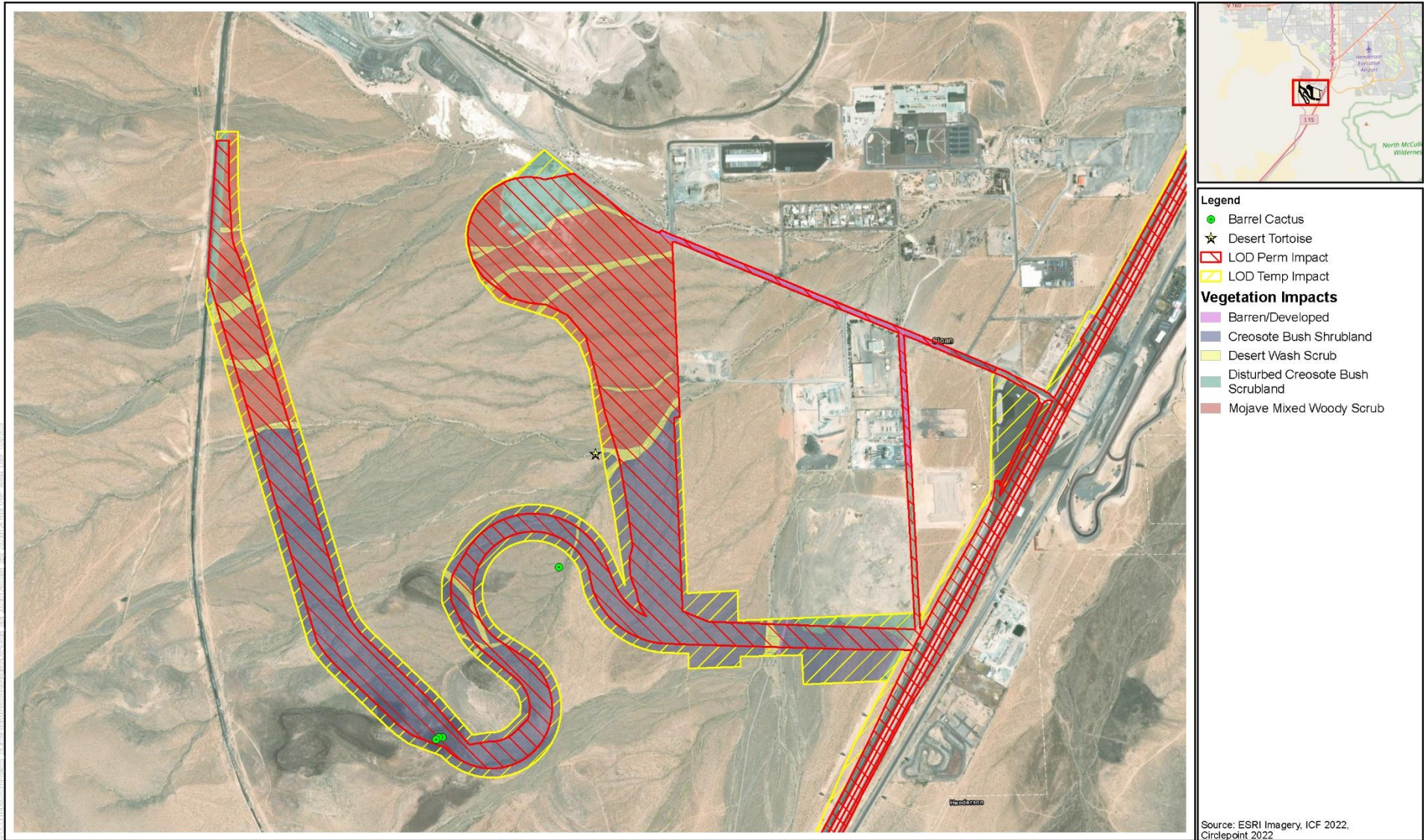
5.15.2 EFFECTS ANALYSIS

INTRODUCTION OR SPREAD OF INVASIVE, NON-NATIVE WEED SPECIES INTO NATURAL VEGETATION COMMUNITIES

The effects related to the introduction and spread of invasive, non-native weed species would still apply to the Sloan VMF footprint. The implementation of Mitigation Measure BIO 4 (avoid dispersal) from the DesertXpress EIS would reduce or mitigate adverse effects from noxious weeds, and the Sloan VMF would not result in substantial changes in the evaluation of invasive, non-native weed species impacts of the DesertXpress EIS or September 2020 Reevaluation.

LOSS OF OR DAMAGE TO NATIVE VEGETATION COMMUNITIES

The effects related to the loss of or damage to native vegetation communities, as described in the DesertXpress DEIS, apply to the Sloan VMF. Based on the vegetation mapping, the Sloan VMF would permanently convert approximately 237.6 acres and temporarily affect approximately 104.0 acres of native vegetation communities. The presence of native vegetation communities which overlap with the Sloan VMF temporary and permanent footprint are depicted in Figure 5-2 below. Mitigation Measures BIO-5 (confine equipment), BIO-6 (revegetation), BIO-7 (retain topsoil), BIO-8 (restore topography), BIO-9 (erosion control), and BIO-18 (Nevada compensatory mitigation) from the DesertXpress EIS would be implemented to avoid, minimize or mitigate adverse effects from loss of or damage to native vegetation communities. The Sloan VMF would not result in substantial changes in the evaluation of native vegetation community impacts of the DesertXpress EIS or September 2020 Reevaluation.



- Legend**
- Barrel Cactus
 - ★ Desert Tortoise
 - ▨ LOD Perm Impact
 - ▨ LOD Temp Impact
- Vegetation Impacts**
- Barren/Developed
 - Creosote Bush Shrubland
 - Desert Wash Scrub
 - Disturbed Creosote Bush Scrubland
 - Mojave Mixed Woody Scrub



Sloan VMF Biological Resources
Brightline

SENSITIVE VEGETATION COMMUNITIES

There were no sensitive vegetation communities identified within the Sloan VMF footprint. Therefore, the Sloan VMF is anticipated to affect sensitive vegetation communities.

POTENTIAL EFFECTS ON SPECIAL-STATUS PLANT POPULATIONS

Penstemon bicolor ssp. roseus was not observed during the focused plant surveys at the Sloan VMF site. Based on input from the BLM District botanist and the botanists who performed the rare plant survey, no plant species with Federal (USFWS and BLM) status were observed or have the potential to occur within the Sloan VMF site. As such, effects on USFWS and BLM special-status plant populations are not expected. Estimates and/or direct counts of all cacti and yucca species within the Sloan VMF footprint were recorded, depicted in Table 6.3 2 of Attachment C.

The implementation of Mitigation Measures BIO-5 (confine equipment), BIO-14 (avoid known populations), and BIO-15 (mitigation) from the DesertXpress EIS would be implemented to reduce or mitigate adverse effects on sensitive plant populations.

POTENTIAL EFFECTS ON SPECIAL STATUS WILDLIFE

The Sloan VMF site is located west of the I-15 freeway ROW on undeveloped land, which provides habitat for special-status wildlife.

Desert Tortoise and Desert Tortoise Habitat

The effects related to construction and operational activities on desert tortoise individuals and desert tortoise habitat, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint (Sloan VMF).

A desert tortoise individual was observed during the focused rare plant surveys within Sloan VMF footprint. Based on the vegetation mapping, the Sloan VMF footprint would permanently convert approximately 238 acres and temporarily affect approximately 104 acres of desert tortoise habitat. Implementation of Mitigation Measures BIO-1 (worker education program), BIO-2 (pre-construction surveys and fencing), BIO-3 (monitoring), BIO-5 (confine equipment), BIO-15 (prepare translocation plan), BIO-16 (final monitoring plan), BIO-18 (Nevada compensatory mitigation), and BIO-19 (exclusion fencing and culverts) from the DesertXpress EIS, as well as additional minimization and compensatory mitigation measures included in the new BO (Chapter 8), would reduce or mitigate adverse effects on desert tortoise and desert tortoise habitat. Thus, the Sloan VMF would not result in substantial changes in the evaluation of desert tortoise and desert tortoise habitat impacts of the DesertXpress EIS or September 2020 Reevaluation.

Nesting Raptors and Migratory Birds

Effects related to construction and operational activities on nesting raptors and migratory birds, as described in the DesertXpress EIS, would apply to the Sloan VMF site. Based on the vegetation mapping, the Sloan VMF footprint would permanently convert approximately 238 acres and temporarily affect approximately 104 acres of suitable nesting habitat. Mitigation Measures BIO-1 (worker education program), BIO-2 (pre-construction surveys and fencing), BIO 3 (monitoring), and BIO-5 (confine equipment) would be implemented to reduce or mitigate adverse effects on nesting raptors and migratory birds. Additionally, regulations under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act would apply to minimize the modified Project footprint effects on nesting raptors

and migratory birds. Thus, the Sloan VMF would not result in substantial changes in the evaluation of nesting raptors and migratory bird impacts of the DesertXpress EIS or September 2020 Reevaluation.

BLM Southern Nevada Sensitive Species

The entire Sloan VMF footprint occurs on BLM-administered public lands. As such, the 2017 Final BLM Southern Nevada special-status species lists were reviewed, and the special-status species were reviewed for their potential to occur within the Project area. The effects related to construction and operational activities on the BLM-sensitive species, as described in the DesertXpress EIS, would apply to the Sloan VMF footprint. These species include bats, reptiles such as banded Gila monster, desert horned lizard, desert iguana, Great Basin collard lizard, long-nosed leopard lizard, desert tortoise, chuckwalla, sidewinder, shovel-nosed snake, and a number of birds and raptors. Based on the vegetation mapping, the Sloan VMF footprint would permanently convert approximately 238 acres and temporarily affect approximately 104 acres of suitable habitat. Mitigation Measures BIO-1 (worker education program), BIO-2 (pre-construction surveys and fencing), BIO-3 (monitoring), and BIO-5 (confine equipment) would be implemented to avoid direct mortality of these species. Thus, the Sloan VMF would not result in substantial changes in the evaluation of BLM Southern Nevada sensitive species impacts of the DesertXpress EIS or September 2020 Reevaluation.

Burrowing Owl

Burrowing owls are a BLM sensitive species. Effects related to construction and operational activities on burrowing owl, as described in the DesertXpress EIS, would apply to the Sloan VMF footprint. Based on the vegetation mapping, the Sloan VMF footprint would permanently convert approximately 246 acres and temporarily affect approximately 104 acres of suitable nesting habitat. Mitigation Measures BIO-1 (worker education program), BIO-2 (pre-construction surveys and fencing), BIO-3 (monitoring), BIO-5 (confine equipment), and BIO-21 (avoid or passively relocate owls) would be implemented to minimize or avoid potential loss or disturbance of burrowing owls. Thus, the Sloan VMF would not result in substantial changes in the evaluation of burrowing owl impacts of the DesertXpress EIS or September 2020 Reevaluation.

Wildlife Movement

The effects related to construction and operational activities on wildlife movement, as described in the DesertXpress EIS, would apply to the Sloan VMF footprint. The Sloan VMF is located adjacent to the I-15 freeway corridor, which serves as a major barrier for wildlife movement. Habitat fragmentation or isolation as a result of the Sloan VMF is not anticipated. Existing culverts and wildlife crossing locations under the I-15 freeway corridor would remain in place. The implementation of Mitigation Measures BIO-3 (monitoring) and BIO-19 (exclusion fencing, culverts, and wildlife crossings) from the DesertXpress EIS, as well as minimization and mitigation measures outlined in the BO, would be implemented to reduce or mitigate adverse effects on wildlife movement. Thus, the Sloan VMF would not result in substantial changes in the evaluation of wildlife movement impacts of the DesertXpress EIS or September 2020 Reevaluation.

POTENTIAL EFFECTS ON SPECIAL MANAGEMENT LANDS

The Sloan VMF would not affect either USFWS-designated critical habitat or BLM ACEC. The entirety of the Sloan VMF facility occurs on BLM-administered public lands.

5.15.3 MITIGATION MEASURES

FRA updated the mitigation measures provided in the 2011 Biological Opinion for the Project, and described in the September 2020 Reevaluation, after consultation with the USFWS. USFWS recommended updates to the mitigation measures to reflect translocation plan strategy requirements, as well as a culvert assessment for the Sloan VMF site. FRA sent a concurrence letter to USFWS on August 11, 2023, and received USFWS concurrence on the revised mitigation measures on September 1, 2023 (see Attachment B).

The mitigation measures developed in the DesertXpress EIS and revised since the September 2020 Reevaluation would mitigate for and avoid adverse effects to biological resources. Refer to Attachment D, Mitigation Measure Summary, for the full list and descriptions of mitigation measures, which includes desert tortoise conservation measures, terms and conditions of the BO specific to desert tortoise, and general biological resource mitigation measures.

5.16 CUMULATIVE IMPACTS

The evaluation of cumulative impacts for this Reevaluation considered impacts from the Project modifications, including the Sloan VMF, in combination with current, planned, and reasonably foreseeable projects in the Project vicinity. Overall, the modified Project's contributions, including the Sloan VMF, to cumulative impacts would be unchanged or reduced because of the modified Project's reduced footprint and location within the I-15 freeway ROW. Review of present and reasonably foreseeable projects within the Project vicinity did not identify new planned or programmed projects within or adjacent to the modified Project footprint that would substantially affect the cumulative impacts conclusions or assessment conducted in the DesertXpress EIS or September 2020 Reevaluation. Furthermore, the mitigation measures developed in the DesertXpress EIS and revised in the September 2020 Reevaluation to reduce Project impacts would still apply to the modified Project, including the Sloan VMF, to reduce contributions to cumulative effects. Thus, the type and magnitude of impacts resulting from the Project modifications, including the Sloan VMF, would be comparable to those identified in the DesertXpress EIS and September 2020 Reevaluation.

6.0 Changes in Mitigation Measures

FRA has revised the mitigation measures included in the 2011 DesertXpress EIS to clarify roles and responsibilities, remove measures where impacts will be avoided, and incorporate recommendations from consultation. The mitigation measures are listed in Attachment D.

7.0 Conclusion

This Reevaluation assessed the Project modifications against the proposed action described in the DesertXpress FEIS, ROD and FRA's prior re-evaluation in September 2020. FRA concludes that the Project modifications would result in reduced overall impact from the Project, and would not result in significant environmental impacts that were not evaluated in the 2011 DesertXpress EIS. In addition, FRA did not identify any new information or circumstances relevant to Project's environmental effects that would result in new significant impacts that were not evaluated in the 2011 DesertXpress EIS. FRA considered any changes to the affected environment, regulatory setting, and Project effects since FRA's September 2020 Reevaluation and determined that the conclusions of the DesertXpress FEIS and ROD remain valid.

Through consultation under Section 106 of the NHPA, FRA determined the Project would result in adverse effects to historic properties and executed a Programmatic Agreement (PA) to prescribe a process for resolving adverse effects. Compliance with the terms of the PA satisfies FRA's responsibilities under Section 106. Based on the assessment of effects to historic properties, FRA determined the Project would result in the use of archeological districts and sites. FRA evaluated the use of historic properties under Section 4(f) of the DOT Act and determined there was no feasible and prudent alternative to avoid the use of the Section 4(f) resource and that the Project included all possible planning to minimize harm. In addition, in compliance with Section 7 of the ESA, FRA informally consulted with the USFWS on the Project modifications. In consultation with FRA, USFWS recommended revisions to the mitigation measures, which are included in the revised Biological Opinion for the Project. On September 1, 2023, USFWS concurred that re-initiation of formal consultation under Section 7 was not required for the Project.

Based on this information, FRA concludes that supplemental environmental analysis is not necessary for the proposed Project modifications.

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