

Attachment B: Resource Impacts Analysis Report

1.0 Introduction

The DesertXpress Enterprises, LLC XpressWest High-Speed Train Project (Project) entails construction and operation of a high-speed passenger train system between Apple Valley, California, and Las Vegas, Nevada. The Project was originally evaluated in the following documents (collectively referenced as the DesertXpress Environmental Impact Statement [EIS]):

- March 2009 *Draft Environmental Impact Statement 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 4(f) Evaluation for the proposed DesertXpress High-Speed Passenger Train Victorville, California to Las Vegas, Nevada* (DesertXpress FEIS)

The Federal Railroad Administration (FRA) issued the *Record of Decision DesertXpress High-Speed Passenger Train* (DesertXpress ROD) in July 2011.

This report evaluates the Project modification's potential environmental impacts and compares them to impacts documented in the DesertXpress EIS. Specifically, this document addresses the following topics:

- Land Use, Community, and Environmental Justice Impacts
- Growth
- Farmlands and Grazing Lands
- Utilities/Emergency Services
- Visual Resources
- Paleontological Resources
- Geology and Soils
- Hazardous Materials
- Energy
- Cumulative Impacts

For the above resources, FRA determined there was sufficient information publicly available to assess whether regulatory updates, changes to the affected environment, and Project modifications could result in substantial changes in the evaluation of impacts described in the DesertXpress EIS. FRA assessed these resources qualitatively based on the methodology described in Section 2.0, Methodology. For the following resources, FRA conducted additional analyses and prepared separate technical reports to assess potential impacts:

- Transportation and Traffic
- Cultural Resources
- Hydrology and Water Quality
- Air Quality
- Noise and Vibration
- Biological Resources

2.0 Methodology

The analysis of environmental topics addressed in this document generally considers three categories (listed below) in order to identify whether the proposed Project modifications could result in new significant impacts not evaluated in the DesertXpress EIS.

Regulatory Updates. This category includes new laws, regulations, or policies enacted since the DesertXpress EIS. Federal, state, and local regulatory updates that took place after July 2011 were evaluated to determine applicability to the modified Project. The DesertXpress EIS notes that the Project is exempt from state and local land use policies, consistent with the Surface Transportation Board's (STB) 2007 declaratory order.¹ This exemption would apply to the modified Project. 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.

Affected Environment Changes. This category identifies changes in the existing physical environment that have occurred since the DesertXpress EIS. 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 modified Project to determine if new significant impacts would occur.

Project Modifications. This category identifies Project modifications that have occurred since issuance of the DesertXpress ROD. These design changes include modification of the rail alignment, stations, and ancillary facilities. Project modifications were analyzed to determine if they would result in substantial changes in the DesertXpress EIS environmental evaluation. Key Project changes are listed below.

- *Alignment* refers to the railroad trackway between Apple Valley and Las Vegas, split into six segments (Segment 1 through Segment 6). The modified alignment would be constructed primarily within the I-15 freeway right-of-way (ROW); minimal portions of the alignment would exit the I-15 freeway ROW. The Project modifications would not alter the alignment for Segments 2 and 3; Segments 1, 4, 5, and 6 have been modified from the alignments evaluated in the DesertXpress EIS.
- *Stations* include the Dale Evans Station and Operations Maintenance and Storage Facility (OMSF) site in Apple Valley and the Warm Springs Station in Las Vegas. Station sites would offer train ticketing, baggage handling, and parking for passengers. The OMSF would include a train washing facility, repair shop, parts storage, and operations control center. As the Dale Evans Station and OMSF site would be fully integrated, they are considered as one facility herein, unless otherwise specified. The Dale Evans Station and OMSF site would be located on approximately 300 acres of vacant land near the southernmost point of Segment 1 on the east side of the I-15 freeway near the Dale Evans Interchange. The Warm Springs Station would occupy approximately 110 acres of vacant land north of Blue Diamond Road in Las Vegas on the east side of the I-15 freeway near the Blue Diamond Interchange. Neither of these station site options were evaluated in the DesertXpress EIS. However, they represent the same termini (i.e., the Victorville area, California and Las Vegas, Nevada) and are near the previously evaluated station sites.

¹ 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/0CEC0B2F00B4E90D85257306006C9F38/\\$file/37656.pdf](https://www.stb.gov/decisions/readingroom.nsf/UNID/0CEC0B2F00B4E90D85257306006C9F38/$file/37656.pdf)

- *Ancillary Facilities* include temporary construction areas, negative shoulders², roadway reconstruction areas, paralleling sites (referred to as autotransformers in the DesertXpress EIS), emergency crossovers, electrical substations and associated utility corridors, and a Maintenance of Way (MOW) facility. The modified Project includes ancillary facilities not previously evaluated in the DesertXpress EIS, including additional temporary construction areas, paralleling sites, newly considered emergency crossover, the newly considered Barstow and Ivanpah Electrical Substations and associated utility corridors, and the relocated California MOW facility.

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

3.0 Effect Analysis

3.1 LAND USE, COMMUNITY, AND ENVIRONMENTAL JUSTICE IMPACTS

The following discussion evaluates the potential for the Project modifications to result in land use, community, and environmental justice impacts that are new or were not evaluated in the DesertXpress EIS.

3.1.1 REGULATORY UPDATES

FEDERAL

The DesertXpress EIS identified Federal agencies with authority over land uses within two miles of the Project. The DesertXpress EIS 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:

- The United States Department of the Interior Bureau of Land Management (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 these lands. The Project modifications would only result in the use of land managed by BLM in areas where Project features occur outside of the I-15 freeway ROW in Segments 3, 4, 5, and 6. The modified Project facilities would not directly encounter the lands of other Federal agencies. As discussed under Section 3.1.2, Conflict with Land Use Plans, Policies, or Regulations, the modified Project's use of lands outside the I-15 freeway ROW would be minimal and would have a

² In areas where the I-15 freeway narrows, the Project would require slight widening of the I-15 freeway to accommodate an alignment in the I-15 freeway median. As these modifications would reduce the size of the existing shoulder, they are described as "negative shoulders".

negligible impact on existing land uses. The modified Project would not impact the functioning of adjacent land uses as discussed under *Interference with Normal Functioning of Adjacent Land Uses*.

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. Segment 1 through Segment 4 of the modified Project would traverse land managed by BLM and covered by the DRECP in California. Thus, Project construction and operation within land under BLM management would be subject to resource-specific goals, objectives, and Conservation and Management Actions (CMAs) outlined within the LUPA for the following resource topics:

- Biological Resources
- Air Resources
- Comprehensive Trails and Trail Management
- Cultural Resources and Tribal Interests
- Disturbance Caps
- Lands and Realty
- Livestock Grazing
- Minerals
- National Recreation Trails
- Paleontology
- Soil, Water, and Water Dependent Resources
- Vegetation
- Visual Resource Management
- Wild Horses and Burros

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. Mitigation Measure LU-3 (provided in Section 3.1.3) has been added 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

The DesertXpress EIS evaluated the Project's compatibility with land use designations in plans adopted by state and local agencies, although the Project would be exempt from such regulations as described under Section 2.0, Methodology. The I-15 freeway ROW is owned and operated by the California Department of Transportation in California. In Nevada, the Nevada Department of Transportation (NDOT) is the underlying fee owner for portions of the 15 freeway ROW. NDOT has a grant of easement, allowing them permission to use the land, from BLM for portions of the I-15 freeway within Nevada where BLM is the landowner. In portions of the I-15 freeway ROW where the underlying fee owner is a third party, NDOT has a grant of easement from the third party. Updated land use designations from the

following local jurisdictions were considered, and are described below under *Interference with the Normal Function of Adjacent Land Uses and Conflict with Land Use Plans, Policies, or Regulations*:

- San Bernardino County, California: San Bernardino's 2019 Draft Countywide Plan proposes new land use designations for unincorporated areas in San Bernardino County.^{3, 4}
- Clark County, Nevada: As part of the *Clark County Comprehensive Master Plan*, Clark County updated land use designations across the areas traversed by the Project. In 2012, Clark County released new land use designations for its southern unincorporated areas,^{5,6} while updating land use designations in Prim,⁷ Jean,⁸ and Sloan⁹ in 2013. In 2019, Clark County updated land uses in the Enterprise Planning area, which includes the northernmost portions of the Project alignment and the Warm Springs Station.
- City of Victorville, California: The City of Victorville has not updated land use designations since publication of the DesertXpress EIS.
- Town of Apple Valley: The Town of Apple Valley amended its land use designations in 2019.¹⁰
- City of Barstow, California: The City of Barstow's 2015-2020 Land Use Element updated land use designations within the City of Barstow.¹¹
- City of Baker, California: The 2013 City of Baker City Comprehensive Plan updated land use designations within the City of Baker.¹²
- The City of Las Vegas, Nevada: The Project no longer includes footprint within the City of Las Vegas' jurisdiction. Thus, new land use designations in the City of Las Vegas' jurisdiction would not pertain to the Project.¹³

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, as 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

³ San Bernardino County. 2019. *Proposed Land Use Map*. Available: http://countywideplan.com/wp-content/uploads/2019/05/ProposedLandUs-Map_36x48_190522.pdf. Accessed: October 2019.

⁴ San Bernardino County. 2019. Land Use Element, Tables LU-1 and LU-2. Available: <http://countywideplan.com/wp-content/uploads/2019/05/LandUseTables20190515-1.pdf>. Accessed October 2019.

⁵ Clark County. 2012. *South County Planned Land Use*. https://maps.clarkcountynv.gov/gisplot_pdfs/cp/scplu.pdf. Accessed October 2019.

⁶ Clark County. n.d. Old/New Land Use Category Comparisons. http://www.clarkcountynv.gov/comprehensive-planning/land-use/Documents/LandUseCategories_Comp.pdf. Accessed October 2019.

⁷ Clark County. 2013b. *South County Planning Area Planned Land Use Primm Detail Area*. https://maps.clarkcountynv.gov/gisplot_pdfs/cp/scpluprimm.pdf. Accessed October 2019.

⁸ Clark County. 2013a. *South County Planning Area Planned Land Use Jean Detail Area*. https://maps.clarkcountynv.gov/gisplot_pdfs/cp/scplujean.pdf. Accessed October 2019.

⁹ Clark County. 2013c. *South County Planning Area Planned Land Use Sloan Detail Area*. https://maps.clarkcountynv.gov/gisplot_pdfs/cp/scpluloan.pdf. Accessed October 2019.

¹⁰ Town of Apple Valley. 2019 Town of Apple Valley. Available: <https://www.applevalley.org/home/showdocument?id=28007>. Accessed May 2019.

¹¹ City of Barstow. 2015. 2015-2020 Land Use Element. <http://www.barstowca.org/home/showdocument?id=5361>. Accessed October 2019.

¹² City of Baker. 2013. *City of Baker Comprehensive Plan*. <https://www.bakercity.com/DocumentCenter/View/1105/Baker-City-Comprehensive-Plan>. Accessed October 2019.

¹³ Clark County. 2019. Enterprise Planning Area. Available: https://maps.clarkcountynv.gov/gisplot_pdfs/cp/entplu.pdf. Accessed October 2019.

to parallel the east side of the I-15 freeway.¹⁴ The modified Project would intersect the corridor where the alignment follows the east side of the I-15 freeway south of Jean, Nevada. The Project footprint would not conflict with this Act because the Project consists of the uses the Act permits: transportation uses and associated infrastructure. The Project modifications would not result in substantial changes in the evaluation of land use impacts of the DesertXpress EIS.

3.1.2 PROJECT MODIFICATIONS

RESIDENTIAL AND BUSINESS DISPLACEMENTS

The modified Project stations and ancillary facilities would be constructed on vacant land and thus would not result in residential or business displacements. The Warm Springs Station site in Las Vegas is comprised of undeveloped land and would not result in business displacements, whereas the former station site identified in the DesertXpress EIS would have required displacement of several existing businesses. The Project modifications would reduce residential and business displacement impacts as compared to the DesertXpress EIS.

DIVISION OF AN ESTABLISHED COMMUNITY

The DesertXpress EIS 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 Project modifications would not change the DesertXpress EIS conclusions regarding community division. The modified rail alignment would be primarily constructed within the I-15 freeway median, with some areas constructed adjacent to the east side of the I-15 freeway. Stations and the OMSF would be adjacent to the I-15 freeway in both Apple Valley and in Las Vegas. As such, the Project modifications would not result in substantial changes in the evaluation of community division impacts of the DesertXpress EIS.

INTERFERENCE WITH NORMAL FUNCTIONING OF ADJACENT LAND USES

The DesertXpress EIS assessed the Project's compatibility with adjacent land uses to determine if Project construction or operation would interfere with the normal functioning of these land uses. Most of the modified Project alignment would be placed within the I-15 freeway ROW, resulting in potential conflicts with the future widening and operation of the I-15 freeway as established by the DesertXpress EIS. The DesertXpress EIS also proposed most of the rail alignment within the I-15 freeway ROW. Although the Project modifications would introduce a greater chance for conflict with the I-15 freeway, it would greatly reduce conflicts with non-transportation land uses outside of the I-15 freeway ROW. Within the I-15 freeway ROW, the modified Project would incorporate design guidelines provided in the 2011 DesertXpress Highway Interface Manual to ensure the Project adheres to highway design standards to integrate with the I-15 freeway safely and without impacting regular freeway operations.

Considering land uses outside of the I-15 freeway ROW, the Project would travel adjacent to residential, commercial, industrial, and open space areas. The DesertXpress EIS concluded the Project would not negatively impact adjacent land uses through incorporation of mitigation measures pertaining to utilities

¹⁴ 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: December 2019.

and emergency services, visual resources, transportation, air quality, and noise. The Project modifications would not change the DesertXpress EIS conclusions regarding impacts on adjacent land uses, because the modified Project would still be primarily located within or immediately adjacent to the I-15 freeway corridor. As such, the mitigation measures identified in the DesertXpress EIS that would avoid or minimize negative impacts to adjacent land uses (summarized in Section 3.1.3, Mitigation Measures) would still apply to the Project modifications. 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.

CONFLICT WITH LAND USE PLANS, POLICIES, OR REGULATIONS

Stations and OMSF Site

The modified stations and OMSF occur within similar land use designations as the station sites previously evaluated in the DesertXpress EIS and would therefore not change the DesertXpress EIS conclusions regarding land use conflicts.

- The Victorville Station sites analyzed in the DesertXpress EIS overlaid industrial, commercial, and residential land use designations. The modified Dale Evans Station and OMSF site would be constructed on vacant land designated for regional commercial use.^{15,16}
- The Las Vegas Station sites analyzed in the DesertXpress EIS overlaid industrial, commercial, civic, and residential land use designations. The modified Warm Springs Station would be constructed entirely on vacant land designated for commercial tourist uses, which allow for commercial uses such as casinos and resorts.^{17,18}

Thus, the modified station sites would not result in substantial changes in the evaluation of land use conflict impacts of the DesertXpress EIS.

Alignment and Ancillary Facilities

The DesertXpress EIS concluded the Project would be highly compatible with transportation land use designations along the I-15 freeway corridor. Because the modified alignment would be within or adjacent to the I-15 freeway ROW, the alignment would not result in any conflicts with applicable land use plans. Some ancillary facilities, including temporary construction areas, utility corridors, electrical substations, emergency crossovers, and the Frias Substation would occur outside of the I-15 freeway ROW. Ancillary facilities outside of the I-15 freeway in California would occur within the same locations as analyzed in the DesertXpress EIS apart from a portion of a temporary construction easement in Segment 2 and the electrical substations. In Nevada, the Frias substation would be the only ancillary facility that would occur outside of the I-15 freeway ROW and includes footprint not evaluated in the DesertXpress EIS.

¹⁵ Town of Apple valley. 2019 Town of Apple Valley. Available: <https://www.applevalley.org/home/showdocument?id=28007>. Accessed May 2019.

¹⁶ San Bernardino County. 2019. Land Use Element, Tables LU-1 and LU-2. Available: <http://countywideplan.com/wp-content/uploads/2019/05/LandUseTables20190515-1.pdf>. Accessed October 2019.

¹⁷ Clark County. 2019. Enterprise Planning Area. Available: https://maps.clarkcountynv.gov/gisplot_pdfs/cp/entplu.pdf. Accessed October 2019.

¹⁸ Clark County. n.d. Old/New Land Use Category Comparisons. http://www.clarkcountynv.gov/comprehensive-planning/land-use/Documents/LandUseCategories_Comp.pdf. Accessed October 2019.

Table 3.1-1 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 DesertXpress EIS, 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. Although land use designations have changed across the Project vicinity, land uses compatibility with modified Project facilities has not changed in all cases.

Although the Project modifications would reduce the Project compatibility with adjacent land uses in several areas, the Project modifications would overall reduce potential conflicts with applicable land use plans. Footprint areas outside of the I-15 freeway ROW would occur on vacant land and primarily require temporary use. Furthermore, Project utility corridors would be collocated within existing utility or roadway corridors. The placement of the entire alignment within or directly adjacent to the I-15 ROW would avoid substantial land use conflicts identified in the DesertXpress EIS. Footprint areas outside of the I-15 freeway ROW would be greatly reduced in comparison with the Preferred Alternative evaluated in the DesertXpress EIS. This will reduce the impacts of the Project as compared to the DesertXpress EIS.

Table 3.1-1 Compatibility with Land Use Designations

Segment/ Project Feature	Modified Project Footprint	DesertXpress EIS Land Use Designations	DesertXpress EIS Compatibility	Current Land Use Designation	Project Compatibility with Current Land Uses
Segment 1	None	N/A	Low-High	N/A	N/A
Segment 2	Barstow Electrical Substation	Not Evaluated in the DesertXpress EIS	Not Evaluated in the DesertXpress EIS	Resource Conservation Open Space	Low
Segment 2	Temporary Construction Area	Institutional/Annual Exemption, Residential, Commercial	High	Resource/Land Management, Commercial	Low-High
Segment 3	Temporary Construction Area, Emergency Crossovers	Commercial, Institutional/Annual Exemption, Residential	High	General Commercial, General Industrial, Diverse Use, Public Quasi Public, Resource/Land Management	Low-High
Segment 4	Ivanpah Electrical Substation	Not Evaluated in the DesertXpress EIS	Not Evaluated in the DesertXpress EIS	Resource/Land Management	Low
Segment 5	Temporary Construction Areas	Institutional/Public Facilities and Hotel/Casino	Low-High	Public Facilities, Open Lands, Commercial tourist	Low-High
Segment 6	Temporary Construction Areas	Hotel/Casino, Industrial and Institutional/Public Facilities	Low-High	Commercial Tourist	Medium
Frias Substation	Substation	Administrative and Professional, Residential	Medium-High	Residential Suburban, Residential Low	Medium

N/A = Not Applicable

CONFLICTS WITH AIRPORT LAND USES

In Apple Valley, the closest airport to the project is the Osborne Private Airport, which is approximately four miles west of the Dale Evans Station and OMSF site. The Project modifications for the Victorville Station and OMSF site would relocate the Dale Evans Station and OMSF from the west side of the I-15 freeway to the eastside of the freeway in Apple Valley. The Dale Evans Station and OMSF would be farther away and on the opposite side of the I-15 freeway from the Osborne Airport. Thus, the Project modification at this location would not create a new conflict with this airport.

The rail alignment would pass in the vicinity of Jean Sport Aviation Center 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. Although the modified alignment would be located east of the I-15 freeway, it would remain within the I-15 freeway ROW and still parallel the airport runways. Thus, the Project modifications would not conflict with the operation of Jean Sport Aviation center.

The rail alignment would pass near lands designated for future construction of the Ivanpah Valley Airport south of the Jean Sport Aviation Center in Segment 5. As identified in the DesertXpress EIS, 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.¹⁹ No published land use compatibility plans exist for the Ivanpah Valley Airport. The modified Project would locate the rail alignment on the east side of the I-15 freeway in this area. The DesertXpress EIS developed 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 Airport. The modified Project now stops south of McCarran Airport at the Warm Springs Station. 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.²⁰ This reduces impacts 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.²¹ The Project modifications would not result in substantial changes in the evaluation of airport land use impacts of the DesertXpress EIS.

¹⁹ 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: October 2019.

²⁰ McCarran Airport Environs. n.d. Available: https://maps.clarkcountynv.gov/gisplot_pdfs/cp/McCarran-AirportEnvirons.pdf. Accessed: October 2019.

²¹ Clark County. *Enterprise Land Use Plan*. Available: <https://www.clarkcountynv.gov/comprehensive-planning/land-use/Documents/2014%20Enterprise%20Land%20Use%20Plan.pdf>. Accessed: October 2019.

ENVIRONMENTAL EFFECTS DISPROPORTIONATELY BORNE BY LOW-INCOME OR MINORITY POPULATIONS

The DesertXpress EIS identified locations where the Project would intersect or occur within 1 mile of environmental justice communities using year 2000 U.S. Census data.²² Because census tract boundaries have been redrawn since this analysis, 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 2017 and 2018 U.S. Census data.²³

Table 3.1-2 provides a comparison of the modified Project's proximity to environmental justice block groups, relative to those identified in the DesertXpress EIS. Increases in the minority population near the I-15 freeway, especially near the City of Barstow, would result in a greater number of environmental justice census block groups crossed by the modified Project relative to the DesertXpress EIS.

The DesertXpress EIS concluded that impacts to environmental justice block groups would be minimized through mitigation measures to address noise, dust, traffic, visual resources, and utilities. Thus, the Project modifications would not result in significant impacts on environmental and community resources not evaluated in the DesertXpress EIS. Mitigation measures established in the DesertXpress EIS (described in Section 3.1.3, Mitigation Measures), would avoid impacts to environmental justice block groups. The modified Project would not result in new environmental effects disproportionately borne by environmental justice communities. Thus, the Project modifications would not result in substantial changes in the evaluation of environmental justice impacts of the DesertXpress EIS.

Table 3.1-2 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 Modified Project Facilities
Dale Evans Station and OMSF site	Within 2 EJ census blocks	Near 2 EJ census blocks
Segment 1	Cross 2 EJ census blocks	Cross 3 EJ census blocks
Segment 2	Within 1 mile of 4 EJ census blocks	Cross 12 EJ census blocks
Segment 3	Cross 3 EJ census blocks	Cross 2 EJ census blocks
Segment 4	Cross 1 EJ census block	Cross 1 EJ census blocks
Segment 5	Outside any EJ census block	Cross 2 EJ census blocks
Segment 6	Cross 4 EJ census blocks	Cross 5 EJ census blocks
Warm Springs Station	Within 1 EJ census block	Within 1 mile of 6 EJ census blocks
Frias Substation	Outside any EJ census block	Within 1 EJ census block

²² *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.

²³ United States Environmental Protection Agency. 2019. EJSscreen: Environmental Justice Screening and Mapping Tool. Available: <https://www.epa.gov/ejscreen>. Accessed October 2019.

3.1.3 MITIGATION MEASURES

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 Dale Evans Station and OMSF site that reflect the surrounding desert landscape, design of signage at the Dale Evans Station and OMSF 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.
- **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.

Mitigation Measure LU-3 (provide below) would be added to ensure compliance with applicable goals, policies, and CMAs where the modified Project would traverse land under BLM management protected by the DRECP.

Mitigation Measure LU-3: DRECP Land Use Plan Amendment Conservation and Management Action Compliance. DesertXpress Enterprises, LLC shall coordinate with BLM to identify if any portions of the modified Project would encounter lands regulated by BLM under the DRECP LUPA-designated plan area and determine if any CMAs outlined in the LUPA would apply to the Project in these areas. Applicable CMA requirements shall be incorporated into the final Project design prior to construction on all land under BLM management regulated by the DRECP LUPA.

3.2 GROWTH

This section evaluates regional population, housing, and employment effects that would result from Project implementation.

3.2.1 REGULATORY UPDATES

No updates to Federal, state, or local regulation that pertain to the modified Project effects on local and regional growth have occurred since the DesertXpress EIS. However, population and employment projections acquired from the relevant regional and local general plans used in the DesertXpress EIS have since been updated; these projection updates are reflected in the analysis below.

3.2.2 PROJECT MODIFICATIONS

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 would reduce the overall footprint and shorten the construction period. However, these reductions would not substantially change the DesertXpress EIS conclusions regarding construction-period employment because Project construction would still create employment opportunities in the Project vicinity. Thus, the modified Project would still contribute positively to local employment opportunities and economic growth throughout the modified Project area during construction. In addition, the DesertXpress EIS included Voluntary Mitigation Measure GRO-1 in order to ensure jobs generated by the Project would be made available to Barstow residents. This voluntary mitigation measure would still apply to the Project.

PERMANENT EMPLOYMENT

The DesertXpress EIS 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 Project anticipated 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 DesertXpress EIS conclusions regarding permanent employment because Project operation would require a similar quantity of employees. Table 3.2-1 compares permanent employment estimates from the DesertXpress EIS against employment estimates considering Project modifications.

While the modified Project would result in more jobs created in both the Victorville/Apple Valley area and Las Vegas than previously projected, these increases are beneficial and would not result in substantial changes in the percent of regional growth anticipated from the Project evaluated in the DesertXpress EIS. The modified Project would include permanent employment opportunities at the Dale Evans Station and OMSF site and Warm Springs Station, but would no longer involve permanent employment at the Baker MOW facility nor the Las Vegas Maintenance and Storage Facility (MSF) since these facilities are no longer proposed. The proposed California MOW facility would be utilized as a passive facility for storage of equipment and track, and would no longer serve as headquarters for maintenance staff and would therefore not result in new permanent employment opportunities in the area. The removal of the Las Vegas MSF is considered negligible in regard to permanent employment impacts because Project modifications would result in higher permanent employment overall in the Las Vegas area. The DesertXpress EIS included Voluntary Mitigation Measure GRO-1 in order to ensure jobs generated by the Project would be made available to Barstow residents. This voluntary mitigation measure would still apply to the modified Project.

Table 3.2-1 Comparison of Estimated Permanent Employment Impacts

Location	Buildout Year Number of Employees		Regional Employment Growth Projections		Contribution to New Regional Jobs	
	DesertXpress EIS	Project Modifications	DesertXpress EIS (2010 – 2030)	Project Modifications (2020-2042) ^a	DesertXpress EIS	Project Modifications

Location	Buildout Year Number of Employees		Regional Employment Growth Projections		Contribution to New Regional Jobs	
	2035	2040	2035	2040	2035	2040
Victorville and Apple Valley Area	463	590	38,000	24,283 ²⁴	1.2%	2.4%
Victorville and Apple Valley Area	463	590	38,000	24,283 ²⁵	1.2%	2.4%
Baker Area	8	0	N/A	N/A	N/A	0%
Las Vegas	251	480	89,051	165,400 ²⁶	0.3%	0.3%

^a Regional employment for both Apple Valley and Victorville in 2042 was calculated using the average annual employment growth rate between 2035 and 2040 (0.8%/year and 0.7%/ year respectively). Regional employment for Las Vegas in 2042 calculated using the current annual employment growth rate for the City of Las Vegas (2.0% per year). Although the modified Project footprint would no longer encounter the City of Las Vegas (see Section 3.1, Land Use), this city is still the largest source of potential employees in the area. Therefore, projections for the City of Las Vegas employment growth utilizes the annual employment growth rate for this city.

TRANSIT-ORIENTED DEVELOPMENT POTENTIAL

The DesertXpress EIS analyzed the Project potential to induce transit-oriented development (TOD), which is development that aims to promote sustainable urban growth through densification near transit stations. The DesertXpress EIS 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 DesertXpress EIS conclusions regarding induced TOD because it would not substantially change the nature of trips provided during Project operation. The Project would still connect the Victorville area and Las Vegas and would also be likely to provide non-work trips since fares would not decrease from those considered in the DesertXpress EIS. Thus, the Project modifications would not result in significant TOD development impacts not evaluated in the DesertXpress EIS. The DesertXpress EIS included Voluntary Mitigation Measure GRO-2 in order to encourage implementation of transit oriented and master planned development. This voluntary mitigation measure would still apply to the Project.

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

²⁴ Southern California Association of Governments. 2016. *2016-2040 RTP/SCS Final Growth Forecast by Jurisdiction*. April 7, 2016. https://www.scag.ca.gov/Documents/2016_2040RTPSCS_FinalGrowthForecastbyJurisdiction.pdf. Accessed October 2019.

²⁵ Southern California Association of Governments. 2016. *2016-2040 RTP/SCS Final Growth Forecast by Jurisdiction*. April 7, 2016. https://www.scag.ca.gov/Documents/2016_2040RTPSCS_FinalGrowthForecastbyJurisdiction.pdf. Accessed October 2019.

²⁶ City of Las Vegas. 2019. *City of Las Vegas Economic Overview*. July 2019. <http://communitydashboard.vegas/economicoverview>. Accessed October 2019.

because the Project would not include stations in the aforementioned communities. The DesertXpress EIS determined that automobile traffic volumes would be reduced by five to 12 percent during AM and PM peak hours in the Project opening year, but automobile traffic along the I-15 freeway would remain high due to the anticipated increase in travel demand between southern California and Las Vegas into the future. Thus, the DesertXpress EIS concluded the Project would result in potential minor adverse effects to the economic vitality of these communities.

The modified Project would not change the DesertXpress EIS conclusions regarding economic vitality because the Project changes 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 publication of the DesertXpress EIS, 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.

3.2.3 MITIGATION MEASURES

Voluntary Mitigation Measures GRO-1 and GRO-2 were established in the DesertXpress EIS. 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 required DesertXpress Enterprises, LLC to coordinate with the appropriate City of Barstow and San Bernardino County economic development departments to ensure job opportunities at the maintenance facility are made available to Barstow residents. In addition, DesertXpress Enterprises, LLC will work with the City of Barstow to ensure it residents are informed of job opportunities both during construction and operation of the Project. This voluntary mitigation measure was suggested in the DesertXpress EIS due to the City of Barstow concerns regarding potential economic impacts the Project would bring to the City. This mitigation measure will be carried forward into the Project modifications to ensure job opportunities remain available to Barstow residents.
- **Voluntary Mitigation Measure GRO-2.** Voluntary Applicant Coordination for Land Use Planning required the Project applicant to voluntarily commit to work with local land use planning authorities to encourage implementation of transit oriented and master planned development at the selected station site and surrounding areas; and will work with local transit providers to facilitate intermodal connections where practicable. This voluntary mitigation measure will be carried forward for the Project modifications.

3.3 FARMLANDS AND GRAZING LANDS

This section evaluates farmland and grazing land to identify potential agricultural resource effects that were not assessed in the DesertXpress EIS. This assessment compares current farmland and grazing land designations assigned by the California Department of Conservation (DOC)²⁷, Clark County

²⁷ California Department of Conservation. 2016. California Important Farmland: 2016. <http://maps.conservation.ca.gov/dlrp/ciftimeseries/>. Accessed: July 2019.

Comprehensive Plan (CCCP)²⁸, and BLM²⁹ against Section 3.3, Farming and Grazing Lands, of the DesertXpress EIS.

3.3.1 REGULATORY UPDATES

FARMLAND

Within Nevada, CCCP has not designated farmlands within or near the Project area. 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.

The DesertXpress EIS identified an area of Prime Farmland and Farmland of Statewide Importance within the vicinity of Segment 3 near Newberry Springs, north of the I-15 freeway. The modified Project would not directly or indirectly impact this area of Prime Farmland and Farmland of Statewide Importance. 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.

GRAZING LAND

The DesertXpress EIS 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

3.3.2 PROJECT MODIFICATIONS

Dale Evans Station and OMSF Site

The Victorville Station sites originally analyzed in the DesertXpress EIS were located on grazing land. The DesertXpress EIS developed Mitigation Measures FAR-2, FAR-3, FAR-4, and FAR-5 to avoid and minimize resulting impacts on grazing land. The modified Project includes the Dale Evans Station and OMSF site, which was not previously evaluated. This site is also located on grazing land. The modified Project would not change the DesertXpress EIS conclusions regarding grazing land impacted by the Victorville Station because the Dale Evans Station and OMSF site are of similar size and function to the previously evaluated Victorville Station and OMSF sites. Thus, resulting impacts of the Dale Evans Station and OMSF site on grazing lands would be similar to those evaluated in the DesertXpress EIS. Mitigation Measures FAR-2, FAR-3, FAR-4, and FAR-5 would still apply in order to minimize direct and indirect effects to grazing land in the Dale Evans Station and OMSF site. Thus, the Dale Evans Station and OMSF

²⁸ Clark County Department of Comprehensive Planning. 2017. Clark County Comprehensive Master Plan. <https://www.clarkcountynv.gov/comprehensive-planning/advanced-planning/Pages/ComprehensivePlan.aspx>. Accessed July 2019.

²⁹ Conservation Biology Institute. 2013. BLM Grazing Allotments, DRECP. <https://databasin.org/datasets/57ce6ccd213c4e579bf87c8f2d360dbc>. Accessed: July 2019.

site would not result in substantial changes in the evaluation of grazing land impacts of the DesertXpress EIS.

Alignment

The DesertXpress EIS concluded that the alignment would require conversion of grazing land to a non-agricultural use in portions of Segments 1 through 5. The modified alignment would not require conversion of grazing land because the modified alignment would be constructed within the I-15 freeway ROW. The Project modifications would eliminate adverse effects on grazing land identified in the DesertXpress EIS, resulting in a beneficial effect.

Ancillary Facilities

Negative shoulders, paralleling sites, and the California MOW facility would be located within the I-15 freeway ROW. However, other ancillary facilities, including temporary construction areas, roadway reconstruction areas, emergency crossovers, and the Barstow and Ivanpah Electrical Substations and associated utility corridors could result in footprint impacts outside of the I-15 freeway ROW in new or previously identified grazing allotments. 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.

3.3.3 MITIGATION MEASURES

The following mitigation measures established in the DesertXpress EIS would avoid adverse effects related to farmlands and grazing lands. As Mitigation Measures FAR-1 and FAR-4 applied to areas no longer included in the modified Project footprint, these measures have been removed from consideration and no longer apply to the modified Project.

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

3.4 UTILITIES/EMERGENCY SERVICES

Project construction and operation would require electricity, gas, and water supply, and would generate wastewater and solid waste. The Project would also require emergency services from local fire and police departments.

Train propulsion during Project operation would be the primary driver of electricity usage, which is discussed in greater detail in Section 3.9, Energy. The use of other utilities during operation, such as water use in the washing of trains, would be unlikely to change as the Project would not substantially increase service beyond assumptions evaluated in the DesertXpress EIS.

Ridership is another factor that would influence the Project consumption of utilities, as passengers would be the primary consumers of water, generators of wastewater, and users of other utilities at the station sites and on trains. Passengers would also require emergency services. Ridership estimates including Project modifications determine that Project ridership would not substantially change from the DesertXpress EIS ridership assumptions; when compared to the DesertXpress EIS estimates, ridership projections considering Project modifications would be reduced by less than one percent in the first year

of operation and by approximately six percent by the 15th year of operation. The level of utilities and emergency services required would reduce from the levels considered in the DesertXpress EIS due to this minor reduction in ridership. In addition, sufficient utility infrastructure exists at each station and maintenance facility site to meet anticipated demands.³⁰

3.4.1 REGULATORY UPDATES

FEDERAL

No updates to Federal regulations governing utilities have occurred since the DesertXpress EIS that would pertain to the Project. The BLM would maintain authority over the Project as it has authority over linear utilities that cross public land managed by BLM and other utility facilities authorized on such lands. The Pipeline and Hazardous Materials Safety Administration's standards for petroleum product pipelines, railroads, telephone, broadcasting, sewage and wastewater treatment, heat, gas, electricity, and water would still apply to the Project at crossings of these utilities and infrastructure.

STATE

No updates to Nevada regulations governing utilities have occurred since the DesertXpress EIS that would pertain to the Project. However, since the publication of the DesertXpress EIS, California legislation including Senate Bill 606, Assembly Bill 1669, and the Sustainable Groundwater Management Act have established new measures for increasing water efficiency in the state. This legislation applies to the Project as water purveyors in California are subject to these regulations. Mitigation measures developed in the DesertXpress EIS (Mitigation Measures UTIL-1 and UTIL-2) would require coordination with water purveyors that implement water efficiency requirements established by these California regulations.

As the Project still includes facilities in both California and Nevada, the California Public Utilities Commission and Public Utilities Commission of Nevada would have the same authority over Project utilities as described in the DesertXpress EIS.

3.4.2 PROJECT MODIFICATIONS

The modified OMSF at the Dale Evans Station site would replace and perform the functions of the Las Vegas MSF site considered in the DesertXpress EIS. The Project modifications would relocate the Baker MOW facility and reduce its consumption of utilities, with employees only visiting the site on an as-needed basis. With reduced utility use, the California MOW facility's consumption of utilities would remain negligible as established in the DesertXpress EIS. Thus, the Project overall consumption of utilities from maintenance would not change, although this consumption would occur primarily in Apple Valley instead of Las Vegas. The modified Project impacts on consumption of individual utilities is discussed below.

ELECTRICITY AND GAS

The Project includes electric train locomotives that would require interconnections with regional electricity services. Station sites and maintenance facilities would also require electricity and gas

³⁰ Velasquez, Juan Carlos. 2019. HNTB Corporation. Email communication with Alex Casbara, Project Manager, Circlepoint, September 17, 2019.

services. The modified Project would not change the DesertXpress EIS conclusions regarding electrical and gas usage because modified Project facilities would not increase the need for electrical or gas connections and service.

Although the modified Project would employ the same propulsion system as the Preferred Alternative analyzed in the DesertXpress EIS, DesertXpress Enterprises, LLC produced an updated operations plan with a revised schedule of daily train trips. Section 3.9, Energy discusses changes in the modified Project energy requirements from train operation. The DesertXpress EIS included Mitigation Measure UTIL-1 that requires DesertXpress Enterprises, LLC to pay electrical providers for fees incurred by Project electricity consumption and new electrical connections. 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.

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. Only Project station sites and the OMSF would require water supply; the rail alignment and ancillary facilities would not generate water demand because they would not include landscaping or other water-related uses. The modified Project would not change the DesertXpress EIS conclusions regarding water supply because modified Project facilities would not include new features that would increase the need for water connections or service. Although the location and layout of the stations and the OMSF have changed, the basic design and function of these facilities is unchanged and would not substantively increase water demand from the levels considered in the DesertXpress EIS. 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 Dale Evans Station and OMSF 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.

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. Only station sites and the OMSF would require wastewater treatment services; the rail alignment and ancillary facilities would not require restrooms or other features that would create sewage or wastewater. The modified Project would not change the DesertXpress EIS conclusions regarding wastewater generation because modified Project facilities would not include new features that would increase the need for wastewater treatment or connections. Although the location and layout of the stations and maintenance facilities have changed, the basic design and function of these facilities is unchanged and would not substantively increase wastewater treatment requirements from the levels considered in the DesertXpress EIS. The DesertXpress EIS included Mitigation Measure UTIL-1 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.

STORMWATER

The DesertXpress EIS determined operation of the Project would introduce new impermeable surfaces that could increase stormwater flows into local stormwater systems. Mitigation Measures UTIL-4 and UTIL-5 were developed to address stormwater flows. Mitigation Measure UTIL-4 would ensure the modified rail alignment would connect to existing stormwater conveyance structures along the I-15 freeway corridor. Mitigation Measure UTIL-5 would include the development of appropriate stormwater conveyance structures at the station sites that cannot connect to existing conveyance structures. The modified Project would not change the DesertXpress EIS conclusions regarding stormwater because it would not substantially alter the amount of impervious surface introduced by the Project. The rail alignment, station sites, ancillary facilities, and the OMSF would 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. Refer to Attachment E, Hydrology and Water Quality Technical Report, 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. The modified Project would not change the DesertXpress EIS conclusions regarding solid waste because substantial capacity still exists at these facilities to accommodate construction-period and operational waste generated by the Project.^{31,32} While the location and layout of Project alignment, stations, and ancillary facilities have changed, the anticipated volume of solid waste generated by these facilities during construction and operation would not substantially differ from the assumptions established in the DesertXpress EIS. The Project modifications would not result in substantial changes in the evaluation of solid waste impacts of the DesertXpress EIS.

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. The DesertXpress EIS developed Mitigation Measure UTIL-8 to avoid impacts resulting from utility conveyance crossings by protecting such infrastructure and coordinating with utility providers. New alignment or footprint areas could intersect with utility conveyance systems that were not identified in the DesertXpress EIS, and new conveyance systems may have been constructed since publication of the DesertXpress EIS. However, the modified Project would not change the DesertXpress EIS conclusions regarding utility infrastructure crossings because Mitigation Measure UTIL-8 would still apply to the Project. This

³¹ County of San Bernardino. 2018. *Countywide Siting Element*.

³² State of Nevada. 2017. *Solid Waste Management Plan*.

mitigation measure still applies to the Project and the Project modifications would not result in substantial changes in the evaluation of utility infrastructure crossing impacts of the DesertXpress EIS.

EMERGENCY SERVICES

The Project would increase the need for emergency services by creating a new passenger rail system. During the preparation of the DesertXpress EIS, several emergency service providers that would serve the Project indicated that the Project would strain their existing capacity or raised concerns about their ability to address a train accident. Mitigation Measures UTIL-6 and UTIL-7 were developed to address these concerns. The modified Project would not change the DesertXpress EIS conclusions regarding emergency services because the modified Project does not include new train technology, alignment areas, or other facilities that would increase the risk of catastrophic accidents.

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. While the DesertXpress EIS did not specify the locations of emergency crossovers, the modified Project would include nine access-controlled emergency crossovers. Emergency crossovers would consist of ramps allowing emergency vehicles to access the alignment and move across the alignment via bridges. Additionally, the modified Project facilities would be constructed across the same jurisdictions analyzed in the DesertXpress EIS and would be served by the same emergency service providers. Mitigation Measures UTIL-6 and UTIL-7 would still apply to the Project, and the Project modifications would not result in substantial changes in the evaluation of emergency services impacts of the DesertXpress EIS.

3.4.3 MITIGATION MEASURES

The following mitigation measures established in the DesertXpress EIS 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

3.5 VISUAL RESOURCES

This section assesses effects to aesthetic and visual resources. The visual landscape surrounding the Project area has not changed substantially since publication of the DesertXpress EIS. 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), although the concentration of development has expanded in these areas since 2011 (see Section 3.1, Land Use).

3.5.1 REGULATORY UPDATES

The DesertXpress EIS utilized a blended methodology to assess effects by individual project components based on guidelines provided by the BLM and FHWA. These visual quality guidelines have not changed since publication of the DesertXpress EIS.

3.5.2 PROJECT MODIFICATIONS

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. Construction of stations, alignment, and ancillary facilities 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 the DesertXpress EIS, visual impacts would occur over a similar area. Additionally, the modified Project would utilize fewer temporary construction areas, and visual impacts from construction activities and temporary construction areas 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 visual construction impacts of the DesertXpress EIS.

OPERATION

Alignment

The DesertXpress EIS determined the rail alignment between Segment 1 and Segment 4 visually conflicted with views of the surrounding desert landscape, most notably where the alignment would be adjacent to the Mojave National Preserve Wilderness Area along Segment 3 and 4. Therefore, the DesertXpress EIS determined that these Segments would adversely impact visual quality; however, these impacts would be minimized with implementation of Mitigation Measures VIS-1 and VIS-4.

The modified alignment would result in fewer impacts on the visual setting because it would be constructed adjacent to the I-15 freeway or within the I-15 freeway median throughout its entirety. In addition, the modified alignment would be largely at-grade, rather than being situated on elevated structures. This would decrease adverse visual impacts since at-grade portions would appear less visually dominant compared to elevated tracks. Table 3.5-1 compares the modified Project use of elevated and at-grade alignment to the DesertXpress EIS use of these alignment types. The modified alignment, which would include passing trains, would not substantially add to the visual impact already created by the I-15 freeway corridor. The modified alignment would also decrease visual impacts to the Mojave National Preserve Wilderness Area along Segment 4. 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 visual operational impacts of the DesertXpress EIS.

Table 3.5-1 Use of At-Grade and Elevated Alignment

Alignment	Preferred Alternative (2011 DesertXpress EIS)	Project with Modifications
At-Grade Track Length	117 miles	167.5 miles
Elevated Track Length	57 miles	1.5 miles

Dale Evans Station and OMSF Site

The DesertXpress EIS determined the Victorville Station options would minimally impact visual quality, and impacts would be further reduced through application of Mitigation Measures VIS-2, VIS-3, VIS-5 and VIS-6. The Dale Evans Station and OMSF site would not substantially change the conclusions established in the DesertXpress EIS regarding visual resources because it would be in a similar area to the previously evaluated Victorville Station options. Furthermore, this facility would not significantly differ in terms of size and aesthetic treatment. Like the previously evaluated site options, the Dale Evans Station and OMSF site could obstruct views of distant hills for stationary viewers, including several residences located east of the site. However, the Dale Evans Station and OMSF site would not be visible from the populated areas of Victorville or Apple Valley, and viewers would consist primarily of motorists on the I-15 freeway observing the Dale Evans Station and OMSF site while moving at freeway speeds. Mitigation Measures VIS-2, VIS-3, VIS-5, and VIS-6 would still apply to further minimize visual quality impacts resulting from implementation of the Dale Evans Station and OMSF site. The Dale Evans Station and OMSF site would not result in substantial changes in the evaluation of visual operational impacts of the DesertXpress EIS.

Warm Springs Station

The DesertXpress EIS determined the Las Vegas Station site options would not adversely impact local visual quality due to nearby development characterized by dense residential and commercial urbanization associated with the Las Vegas metropolitan area. The Warm Springs Station site would not change the DesertXpress EIS conclusions regarding visual impacts because the station would still be located within a highly developed setting. Mitigation Measures VIS-5 and VIS-6 would still be applied to minimize visual effects at the Warm Springs Station. The Warm Springs Station would not result in substantial changes in the evaluation of visual operational impacts of the DesertXpress EIS.

Ancillary Facilities

The DesertXpress EIS evaluated potential visual impacts that could result from ancillary facilities associated with Project, including the Baker MOW facility, utility corridors, and paralleling sites.

The previously considered Baker MOW facility was visually consistent with the existing I-15 freeway. However, the DesertXpress EIS also determined the Baker MOW facility would be visible from and thus contrast with the existing visual character of the Mojave National Preserve. The proposed California MOW facility would not substantially differ in size or design from the Baker MOW facility and would continue to be consistent with the visual character of the I-15 freeway. Additionally, the California MOW facility would be located six miles south of the California/State line and would no longer be visible from locations within the Mojave National Preserve. Implementation of Mitigation Measure VIS-3, VIS-4, and VIS-5 would further minimize visual effects of the California MOW facility associated with the modified

Project. The modified ancillary facilities would not result in substantial changes in the evaluation of operational visual impacts of the DesertXpress EIS.

The DesertXpress EIS analyzed a utility corridor near the Victorville Station and determined that this corridor would not create visual quality impacts due to existing metal towers and utility lines in the area. The modified Project no longer includes this utility corridor and instead includes two electrical substations and associated utility corridors located in Barstow and Ivanpah. The Barstow Electrical Substation and associated utility corridor would be located immediately adjacent to the I-15 freeway and suburban development in an area defined by the DesertXpress EIS as having low visual sensitivity. Therefore, this Project feature would not substantially change existing visual quality.

The Ivanpah Electrical Substation would be in a less developed area compared to the Barstow Electrical Substation and would require several miles of utility corridor along existing roadways. This utility corridor would travel around the BrightSource Energy Ivanpah Solar Electric Generating System and would be visually consistent with existing metal towers, utility lines, electrical generation equipment, and other infrastructure in the area. Implementation of Mitigation Measure VIS-1 would further minimize visual effects associated with the new electrical substations and utility corridors. Thus, these modified Project features would not result in substantial changes in the evaluation of visual resource impacts of the DesertXpress EIS.

The DesertXpress EIS evaluated 17 autotransformer sites and determined that autotransformers located between Segment 1 and Segment 4 visually conflicted with views of the surrounding desert landscape. Autotransformers were planned for construction in areas of low visual quality along Segment 5 and 6, and therefore minimally impacted visual quality along that portion of the alignment. Project modifications would replace these autotransformer sites with nine paralleling sites, seven of which would be along the alignment. The remaining two would be located within the station footprints. Project modifications would not change the DesertXpress EIS conclusions regarding visual resources because all paralleling sites would be within the I-15 freeway ROW. Paralleling sites along the alignment would not differ significantly in terms of location or visual integrity relative to the DesertXpress EIS evaluation. Implementation of Mitigation Measure VIS-1 would further minimize visual effects of paralleling sites associated with the modified Project.

Although the DesertXpress EIS assumed the presence of emergency crossovers, it did not specify crossover locations. The modified Project includes nine emergency crossovers that consist of ramps and bridges located within or adjacent to the I-15 freeway ROW. Emergency crossovers would be visually consistent with the existing I-15 freeway, roadway interchanges, and overcrossings. Elevated structures associated with emergency crossovers would have the potential to cause minor obstruction of views; however, these obstructions would be intermittent and would not significantly impact visual quality along the alignment. Implementation of Mitigation Measure VIS-1 would further minimize visual effects of emergency crossovers associated with the modified Project. Thus, the modified ancillary facilities would not result in substantial changes in the evaluation of visual operational impacts of the DesertXpress EIS.

Areas of Critical Environmental Concern

BLM established numerous Areas of Critical Environmental Concern (ACEC) throughout the Project landscape that may exhibit scenic value. The DesertXpress EIS determined that the Project would not traverse ACECs. Out of the eight ACEC's located within 1 mile of the Project, only one area – Afton

Canyon – was determined by BLM to exhibit scenic value. This area is obscured by hills and is not visible from the I-15 freeway; therefore, the DesertXpress EIS determined the Project would not result in visual impacts to ACECs.

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 are the Superior-Cronese, Ivanpah, Shadow Valley, Northern Lucerne Wildlife Linkage, and Soda Mountains Expansion. However, these ACECs were designated for the value they provide to biological resources and other natural systems, not their potential for scenic value (see Attachment H, Biological Resources Technical Report, for further discussion on ACEC impacts). The Project modifications would not result in substantial changes in the evaluation of visual ACEC impacts of the DesertXpress EIS.

3.5.3 MITIGATION MEASURES

The following mitigation measures established in the DesertXpress EIS would avoid adverse effects to visual resources:

- Mitigation Measure VIS-1: Rail Features
- Mitigation Measure VIS-2: Dale Evans 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

3.6 PALEONTOLOGICAL RESOURCES

This section evaluates potential effects to paleontological resources (e.g. fossils) that could be damaged or destroyed during construction-period ground disturbing activities. This evaluation assumes the prevailing geology and paleontological sensitivity throughout the Project area has not changed since the completion of the DesertXpress EIS because conditions that would change paleontological sensitivity would only occur on a geologic timescale.

3.6.1 REGULATORY UPDATES

There is one regulation not discussed in the DesertXpress EIS pertaining to paleontological resources: the Paleontological Resources Preservation Act (16 U.S.C § 470aaa et seq.). this regulation, enacted in 2009, establishes that paleontological resources are significant resources under the National Environmental Policy Act and contains specific provisions governing paleontological resources on public land. BLM is tasked with enforcement of this act on its lands through the implementation of a paleontological resource management program. The DesertXpress EIS identified the geologic units underlying the Project site, evaluated the paleontological sensitivity of those units, and outlined mitigation measures for areas of high paleontological sensitivity. Mitigation Measures CR-7 through CR-13 address the adverse effects of the Project on paleontological resources on land managed by BLM. As such, the DesertXpress EIS analysis is consistent with this new regulation.

3.6.2 PROJECT MODIFICATIONS

This paleontological resource evaluation focuses on Project changes 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, and developed mitigation measures CR-7 through CR-13 to minimize impacts on these areas.

The modified Project would not change the DesertXpress EIS conclusions regarding paleontological resources because all areas of new footprint occur in geologic units that were previously evaluated in the DesertXpress EIS. Therefore, the Project modifications would result in similar paleontological resource effects.

The Dale Evans Station and OMSF and the Warm Springs Station would be constructed in areas of high paleontological sensitivity, consistent with the station locations previously identified in the DesertXpress EIS. Although several types of ancillary facilities would be modified and relocated, the scale and severity of impacts from these facilities would be minor. Electrical substations would be constructed in areas of high paleontological sensitivity but would result in a lower risk of impacts to paleontological resources, as they would require only 8 miles of electrical lines compared to the 16 miles evaluated in the DesertXpress EIS. The relocated California MOW facility would not change impacts to paleontological resources documented in the DesertXpress EIS, as it would be constructed occur over similar geologic units as the Baker MOW facility. Paralleling sites and emergency crossovers would be constructed within footprint areas not considered in the DesertXpress EIS, but these new areas would be minimal and would not be constructed over previously 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 and would be shorter than the alignments analyzed in the DesertXpress EIS, 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.

3.6.3 MITIGATION MEASURES

The following mitigation measures established in the DesertXpress EIS 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

3.7 GEOLOGY AND SOILS

This section considers whether the modified Project would result in new geologic and soil impacts or if there have been changes in subsurface or geologic conditions that could result in new or a substantial increase in adverse effects associated with the following:

- Surface Fault Rupture: The offset or rupturing of the ground surface caused by movement across a fault during an earthquake
- Ground shaking: Surface shaking radiating from the focus of an earthquake
- Liquefaction: The process by which soils liquefy temporarily during strong ground shaking
- Dam Inundation: Flooding resulting from the failure of a dam
- Settlement: The downward collapse of soils due to the introduction of new loads
- Corrosive Soils: Soils that corrode metal and concrete foundations
- Expansive Soils: Soils that increase in volume due to changes in moisture
- Landslides: The destabilization of slopes typically underlain by weak soils
- Ground fissures: Cracks caused by local subsidence often associated with the withdrawal of groundwater, primarily in the Las Vegas area
- Caliche and Hard Rock Excavation: Hardened layers of sediments and rock that increase the difficulty of excavation

Apart from hazards associated with ground fissures, dam inundation, and shallow groundwater, all the above hazards depend primarily on geologic and soil conditions that occur or change on a geologic timescale. In disturbed areas, soil conditions may be altered through the placement of fill material. However, most of the Project area remains undeveloped and unchanged since 2011. Areas of development and change in surface conditions have occurred in the Las Vegas urban area primarily represented by residential and commercial development along the I-15 freeway. Notwithstanding the residential and commercial development in the urban Las Vegas area, no apparent change in soil or geologic conditions has occurred since 2011.

3.7.1 REGULATORY UPDATES

No updates to Federal regulations governing geological hazards have occurred since the DesertXpress EIS that would pertain to the Project. BLM has regulatory authority over both construction and operational activities related to geotechnical aspects of the Project on land under BLM management. However, there are no new BLM regulations that would result in substantial changes to construction or operation of the Project.

3.7.2 PROJECT MODIFICATIONS

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 DesertXpress EIS 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 existing study maps or identifies new faults 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.

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 the California MOW facility, emergency crossovers, paralleling sites, the Barstow and Ivanpah Electrical Substations, the Las Vegas Station site, the Dale Evans Station and OMSF site, and portions of the both alignment and ancillary facilities along Segments 1, 4, 5, and 6. However, the modified Project would not change the DesertXpress EIS conclusions regarding soil hazards because these areas of new footprint would be near areas previously analyzed in the DesertXpress EIS, encountering similar soil and groundwater conditions. Additionally, the DesertXpress EIS also anticipated the need for site-specific evaluation of soil and groundwater conditions, as outlined in Mitigation Measures GEO-3, GEO-5, GEO-6, GEO-7, and GEO-10. These mitigation measures would still apply to the modified Project. 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.

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 DesertXpress EIS 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 DesertXpress EIS.³³ The alignment and ancillary facilities throughout Segments 1, 2, and 3, as well as the Dale Evans Station and OMSF site, would still encounter the Lake Arrowhead and Silverado Lake dam inundation areas. The Barstow Electrical Substation and California MOW facility would not encounter areas prone to flooding.³⁴ 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.

³³ Federal Emergency Management Agency. 2019. *FEMA Flood Map Service Center*. Available: <https://msc.fema.gov/portal/search?AddressQuery=1095%20Rollins%20road%2C%20Burlingame%2C%20CA#searchresultsanchor>. Accessed: October 2019.

³⁴ Ibid.

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. However, the modified Project would not change the DesertXpress EIS conclusions regarding ground fissures because it would include a smaller area of footprint in the Las Vegas area. Therefore, the Project modifications would reduce potential risks from this hazard. 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.

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 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.

3.7.3 MITIGATION MEASURES

The following mitigation measures established in the DesertXpress EIS would avoid adverse geology and soils effects. Mitigation Measure GEO-11: Tunneling has been removed because the modified Project no longer includes tunneled features.

- 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

3.8 HAZARDOUS MATERIALS

This section evaluates impacts related to hazardous materials. The modified Project includes a smaller footprint than originally analyzed in the DesertXpress EIS, which would reduce the quantity of hazardous materials required during construction and operation. Therefore, this analysis focuses on new footprint areas that could result in significant hazardous materials impacts.

The Project modifications do not include new facilities that would change the type of hazardous materials used, stored, or transported during construction or operation. The DesertXpress EIS also

developed Mitigation Measure HAZ-5 to address hazardous wastes generated during Project operation. This mitigation measure would still apply to the modified Project.

3.8.1 REGULATORY UPDATES

No Federal regulatory updates pertaining to hazardous materials have occurred since publication of the DesertXpress EIS. State and local agencies that regulate hazardous materials may have updated regulations regarding hazardous material management, but state and local regulatory updates would not result in substantial changes in the evaluation of hazardous materials impacts of the DesertXpress EIS.

3.8.2 PROJECT MODIFICATIONS

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 Project would not change the DesertXpress EIS conclusions regarding sites of environmental concern because mitigation measures developed by the DesertXpress EIS would still be applied. 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 facilities, including negative shoulders, roadway improvements, paralleling sites, the California MOW facility, 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. Although the Dale Evans Station and OMSF³⁵ and Warm Springs Station³⁶ sites would occur in footprint areas not evaluated in the DesertXpress EIS, Phase I Environmental Site Assessments were completed to identify hazardous material concerns at these station sites in 2019 and did not find evidence of contamination.

The modified Project alignment and ancillary facilities may encounter new sites of environmental concern. However, such sites would be unlikely to result in new types or higher quantities of hazardous material effects that were not evaluated in the DesertXpress EIS. 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. Mitigation Measures HAZ-2 and HAZ-4 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.

UNIDENTIFIED HAZARDOUS MATERIALS

The DesertXpress EIS determined that Project could encounter previously unidentified hazardous materials during construction. The modified Project would not change the DesertXpress EIS conclusions regarding unidentified hazardous materials because it would not increase the overall Project footprint.

³⁵ Vertex. 2019b. *± 283 Acres Vacant Land Between Dale Evans Parkway and I-15 Freeway Apple Valley (Victorville), California.*

³⁶ Vertex. 2019a. *109.05 Acres Vacant Land Northeast Corner of the I-15 Freeway and Blue Diamond Road Las Vegas, Nevada.*

Also, as Project modifications would be constructed in similar locations as analyzed in the DesertXpress EIS, the scale, location, and severity of impacts from unidentified hazardous materials would be similar to those identified in the DesertXpress EIS. 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.

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. The new Dale Evans Station and OMSF site, Warm Springs Station, Barstow and Ivanpah Electrical Substations, emergency crossovers, and California MOW facility sites are currently vacant, and therefore demolition would not be required at these sites. However, demolition of infrastructure, including bridges and elements associated with roadway reconstruction areas, would be required throughout the 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.

NATURALLY OCCURRING ASBESTOS AND ERIONITE

Naturally occurring asbestos (NOA) and erionite are hazardous materials with the potential to occur in the Project vicinity that were not considered in the DesertXpress EIS. 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. Naturally occurring asbestos is a component of soils or rock and can be released by construction or natural weathering processes. Erionite is a naturally occurring compound with similar properties. There are two sections of the modified Project alignment overlaying rock types with potential to contain NOA and erionite. The first section is located at the south end of Ivanpah Valley south of Jean, which exhibits a low-to-moderate risk for NOA. The second section is located approximately three miles north of Jean, which exhibits a moderate-to-high risk for erionite. A field visit was conducted by NDOT on December 17, 2019 to determine if any of the higher risk rock types were in the identified areas. Both sections were visited and none of the higher risk rock types were found. The rock types present are alluvial and unlikely to contain NOA or erionite. Based on these findings, NOA and erionite is unlikely to occur within the modified Project footprint. Thus, the Project modifications would not result in substantial changes in the evaluation of hazardous materials impacts of the DesertXpress EIS.

3.8.3 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

3.9 ENERGY

This section evaluates construction-related energy consumption, operational energy consumption, and peak-period electricity demand.

3.9.1 REGULATORY UPDATES

Relevant regulatory updates since publication of the DesertXpress EIS include the following:

- **Clean Energy and Pollution Reduction Act (Senate Bill 350).** Established in 2015, this law raised the renewable portfolio standard in California, increasing requirements for electrical generation from renewable sources to achieve 50 percent, as well as reducing petroleum use in cars and trucks and doubling the energy efficiency of buildings in California by 2030.³⁷
- **100 Percent Clean Energy Act (Senate Bill 100).** Established in 2018, this law raised the renewable portfolio standard in California, with the goal of increasing electricity generation from renewable resources in California to 50 percent by 2026, 60 percent by 2030, and 100 percent by 2045.³⁸
- **Nevada Renewable Portfolio Standard (Senate Bill 358).** Established in 2009, this law set energy portfolio requirements for the state of Nevada, with the goal of increasing electricity generation from renewables to 20 percent by 2015 and 25 percent by 2025. In 2019, the law was amended to include the requirements of obtaining 50 percent renewable electricity generation by 2030 and 100 percent renewable electricity generation by 2050.³⁹

Overall, California and Nevada established more stringent goals for transitioning to carbon-free sources for energy and electricity generation. This 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 in the DesertXpress EIS.

3.9.2 PROJECT MODIFICATIONS

OPERATIONAL ENERGY CONSUMPTION

Operational energy consumption compares the Project anticipated energy usage against the energy uses of other transportation modes along the Project corridor (e.g. automobiles). This evaluation calculates the reduction in vehicle miles travelled (VMT⁴⁰) that would occur with implementation of the Project. The DesertXpress EIS determined that Project implementation would result in a 910-million-mile reduction in VMT, thereby reducing overall energy consumption along the I-15 freeway transportation corridor. The Project, including Project modifications, are anticipated to result in an approximately 502

³⁷ California Air Resources Board. 2018. *SB 350 Greenhouse Gas Planning Targets - Integrated Resource Planning Process*. August 2018. <https://ww3.arb.ca.gov/cc/sb350/sb350.htm>. Accessed October 2019.

³⁸ California Legislative Information. 2018. *SB-100 California Renewables Portfolio Standard Program: Emissions of Greenhouse Gases*. August 2018. https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201720180SB100. Accessed October 2019.

³⁹ Nevada Public Utilities Commission. 2019. *Renewable Portfolio Standard*. http://puc.nv.gov/Renewable_Energy/Portfolio_Standard/. Accessed October 2019.

⁴⁰ Vehicle miles traveled (VMT) a measurement of the total annual miles of vehicle travel within a defined transportation corridor

million-mile VMT reduction (as discussed in the Traffic Transportation Technical Report). Although this VMT reduction estimate is below the VMT reduction estimate provided in the DesertXpress EIS, it represents a substantial diversion from automobiles to rail within the I-15 freeway corridor.

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 U.S. Energy Information Administration's (EIA) Electricity Market Modular (EMM). Table 3.9-1 presents the DesertXpress EIS electricity capacity projections for the areas that the Project traverses: (EMM Regions 12 and 13).

Table 3.9-1 Regional Energy Demand (DesertXpress EIS)⁴¹

Region	2005	2010	2013	2020	2030
Region 13 (CA)	63.46 GW	67.98 GW	68.65 GW	74.19 GW	85.94 GW
Region 12 (NV)	49.30 GW	56.92 GW	58.96 GW	64.39 GW	77.81 GW

Note: GW = Gigawatts

The DesertXpress EIS determined that the hourly peak-operating energy demand for the fully-electric trains (53 megawatts [MW] in California and 14 MW in Nevada) would represent 0.06 percent and 0.02 percent of the projected 2030 peak demand in California and Nevada, respectively. The DesertXpress EIS concluded that the peak electricity demand from the Project on regional electricity demand would be negligible.

The EIA redefined the EMM Regions in 2011, after publication of the DesertXpress EIS. Project Segments in California are now within EMM Region 20 and Project Segments in Nevada are within EMM Region 21.⁴² However, these two EMM regions represent the same geographic areas as analyzed in the DesertXpress EIS. Table 3.9-2 presents the current electricity capacity projections for these respective regions.

Table 3.9-2 Regional Energy Demand (2019)⁴³

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

The modified Project would have a maximum hourly peak energy demand of 44.2 MW⁴⁴ by 2024 (the Project buildout year) based on the operational power estimates. Assuming all energy required for the

⁴¹ U.S. Department of Energy, Energy Information Administration. 2008. *Annual Energy Outlook 2008: Supplemental Tables (Table 77)*. http://www.eia.doe.gov/oiaf/aeo/supplement/pdf/sup_elec.pdf. Accessed August 2008.

⁴² 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.

⁴³ U.S. Department of Energy, Energy Information Administration. 2019. *Annual Energy Outlook 2019: Supplemental Tables (Table 57)*. http://www.eia.doe.gov/oiaf/aeo/supplement/pdf/sup_elec.pdf. Accessed October 2019.

⁴⁴ 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.

Project is drawn from California, or from Nevada, the Project would utilize approximately 0.04 percent and 0.07 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, and energy demand reductions resulting from the modified Project represent a beneficial effect compared to the DesertXpress analysis.

CONSTRUCTION-RELATED ENERGY CONSUMPTION

The DesertXpress EIS calculated construction-related energy consumption using energy intensity factors based on the number of track miles and stations. Table 3.9-3 compares the construction energy consumption calculated in the DesertXpress EIS against the modified Project construction energy consumption. The modified Project would not change the DesertXpress EIS conclusions regarding construction-related energy consumption because it would potentially result in lower expenditure of energy. The DesertXpress EIS determined that Project construction would consume approximately 5.0 million British Thermal Units (MMBTU), whereas construction of the modified Project would consume approximately 2.4 MMBTU. This is considered a beneficial effect of the Project modifications.

Table 3.9-3 Construction-Related Energy Consumption

Project Facility	Facility Quantity		Energy Consumption (MMBTU)	
	Preferred Alternative (DesertXpress EIS)	Modified Project	Preferred Alternative (DesertXpress EIS)	Modified Project
At-Grade Rural	119 miles	155 miles	1,457,063	1,904,950
At-Grade Urban	0 miles	12.5 miles	0	238,875
Above-Grade Rural	46 miles	0.5 mile	2,557,147	27,730
Above-Grade Urban	11 miles	1 mile	630,579	56,300
Tunnel	2.3 miles	0 miles	228,873	0
Stations	2 stations	2 stations	156,000	156,000
		TOTAL	5,029,662	2,383,855

3.9.3 MITIGATION MEASURES

The DesertXpress EIS determined that 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.

3.10 CUMULATIVE IMPACTS

This section evaluates whether the Project modifications would result in substantial changes to the evaluation of cumulative impacts of the DesertXpress EIS. Consistent with the DesertXpress EIS, the methodology for this cumulative impact analysis was developed according to the guidance presented in

the January 1997 Council on Environmental Quality publication, *Considering Cumulative Effects Under the National Environmental Policy Act*.

The cumulative setting consists of present and future reasonably foreseeable projects in close proximity to the Project footprint, including transportation projects, land development projects, and energy projects. Cumulative projects were identified through (1) review of new projects proposed and changes to projects identified in the DesertXpress EIS by agencies, cities, and counties in the Project vicinity, and (2) review of projects identified under applicable San Bernardino and Clark County regional transportation improvement plans (RTIPs). Section 3.16 of the DesertXpress DEIS lists projects considered in the cumulative impact analysis. The following projects were not considered in the DesertXpress EIS or have changed since the DesertXpress EIS, and were included in this assessment of cumulative impacts associated with the modified Project:

- Allegiant Stadium⁴⁵
- Las Vegas Monorail Expansion^{46,47}
- I-15 Critical Corridor Plan⁴⁸
- McCarran Airport Terminal 3 Addition⁴⁹
- Old Town Specific Plan⁵⁰
- Civic Center Community Sustainability Plan⁵¹
- Barstow Downtown Specific Plan⁵²
- City of Barstow General Plan⁵³
- Casino project from the Chemehuevi Indian Tribe and the Los Coyotes Band of Cahuilla and Cupeno Indians⁵⁴
- Clark County Comprehensive Plan⁵⁵

⁴⁵ Velotta, Richard N. 2017. *First look at details of new Raiders stadium in Las Vegas may answer questions*. <https://www.reviewjournal.com/business/stadium/first-look-at-details-of-new-raiders-stadium-in-las-vegas-may-answer-questions/>. Accessed March 2020.

⁴⁶ Horwath, Bryan. 2019. *New Station: Funding Secured for Las Vegas Monorail Expansion*. Available: <https://vegasinc.lasvegassun.com/business/tourism/2019/oct/10/new-station-funding-secured-for-las-vegas-monorail/>. Accessed February 2020.

⁴⁷ Nevada Department of Transportation. 2018. *I-15 Critical Corridor Plan*. Available: <https://www.nevadadot.com/home/showdocument?id=16606>. Accessed February 2020.

⁴⁸ Las Vegas Monorail. N.d. *Mandalay Bay Extension*. Available: <https://www.lvmonorail.com/corporate/extension/>. Accessed February 2020.

⁴⁹ Clark County Department of Aviation. N.d. *McCarran International Airport Terminal 3 Update*. Available: https://www.mccarran.com/pubfile/41a4311b-39a8-407c-8e80-72d160adf855/330091/2012_05_09_Terminal_3_update.pdf?t=20120801-000000. Accessed February 2020.

⁵⁰ City of Victorville. *Old Town Specific Plan*. <https://www.victorvilleca.gov/government/city-departments/development/planning/old-town-specific-plan>. Accessed February 2020.

⁵¹ City of Victorville. 2016. *Civic Center Community Sustainability Plan*. Available: <https://www.victorvilleca.gov/home/showdocument?id=315>. Accessed February 2020.

⁵² City of Barstow. 2016. *Downtown Specific Plan*. Available: <https://www.barstowca.org/visitors/barstow-downtown-specific-plan>. Accessed February 2020.

⁵³ City of Barstow. 2015. *General Plan and Master Environmental Impact Report*. Available <http://www.barstowca.org/city-hall/city-departments/community-development-department/planning/draft-general-plan-and-master-environmental-impact-report>. Accessed February 2020.

⁵⁴ Branson, Nickolas. 2019. *Tribes Continue to Fight Over New Barstow, California Casino*. Available: <https://www.bestuscasinos.org/news/tribes-continue-fight-over-new-barstow-california-casino/>. Accessed February 2020.

⁵⁵ Clark County. 2013. *South Clark County Land Use Plan*. Available: http://www.clarkcountynv.gov/comprehensive-planning/land-use/Documents/SouthCounty_LandUsePlan.pdf. Accessed February 2020.

- Planned residential developments Las Vegas⁵⁶
- Bluetech Park Las Vegas⁵⁷
- Desert Renewable Energy Conservation Plan⁵⁸

3.10.1 REGULATORY UPDATES

No updates to Federal regulations that pertain to cumulative impacts analysis have occurred since the DesertXpress EIS.

3.10.2 ANALYSIS OF CUMULATIVE IMPACTS

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 modified station locations would be on vacant lands adjacent to the I-15 freeway. As a result, the Project modifications would not result in substantial changes in the evaluation of cumulative land use, community, and environmental justice impacts of the DesertXpress EIS.

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.

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 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.

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

⁵⁶ State of Nevada. 2019. *Residential Opportunities*. Available: <https://www.lasvegasnevada.gov/Business/Economic-Development/Residential-Opportunities>. Accessed February 2020.

⁵⁷ Bluetech. 2019. *Bluetech Park Las Vegas*. Available: <https://www.bluetechpark.com/>. Accessed February 2020.

⁵⁸ Bureau of Land Management. 2016. Available: *Desert Renewable Energy Conservation Plan*. <https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage¤tPageId=95675>. Accessed May 2020.

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 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.

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. Although the Project modifications would result in similar traffic impacts to those identified in the DesertXpress EIS, these impacts would occur at different locations within the transportation network due to the relocated Dale Evans and Warm Springs stations. Mitigation measures developed in the DesertXpress EIS would minimize or avoid such impacts through implementation of roadway improvements. These mitigation measures would be revised to specify roadway improvements that address traffic impacts resulting from the modified station sites. Thus, the Project modifications would not result in substantial changes in the evaluation of cumulative traffic impacts of the DesertXpress EIS.

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, mitigation measures developed in the DesertXpress EIS 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.

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 cultural and paleontological resources in the area. However, because of the regulatory protections given to 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 cultural or paleontological resources and mitigation measures developed in the DesertXpress EIS 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.

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. As the modified Project is of a similar scope and location to the original Project, the Project modifications would not result in substantial changes in the evaluation of cumulative geology and soils impacts of the DesertXpress EIS.

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.

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.

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 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.

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.

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, 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 result in noise impacts along different portions of the alignment than those considered in the DesertXpress EIS. However, the DesertXpress EIS concluded that mitigation measures prescribing the use of sound barriers would avoid and minimize these impacts. Revisions 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.

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 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.

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.

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