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**U.S. Department of Transportation  
Federal Railroad Administration**

**Record of Decision**

**DesertXpress High-Speed Passenger Train**

**Summary**

This is the Record of Decision (ROD) of the Federal Railroad Administration (FRA), an operating administration of the U.S. Department of Transportation, with regard to the DesertXpress High-Speed Passenger Train Project (Project) proposed by DesertXpress Enterprises, LLC (Applicant), a private entity not part of any federal, state, or local government agency. The Applicant has proposed to construct and operate the Project subject to the approval of appropriate authorities, which include FRA, the federal Lead Agency for the Project; the federal Cooperating Agencies for the Project (Federal Highway Administration (FHWA), Surface Transportation Board (STB), and the Bureau of Land Management (BLM)); and other federal agencies with specific review, consultation, and/or permitting roles, including but not limited to the Federal Aviation Administration (FAA), the U.S. Fish and Wildlife Service (USFWS), and the U.S. Army Corps of Engineers (USACE).

In making this decision, FRA considered the information and analysis contained in the 2009 Draft Environmental Impact Statement (EIS), 2010 Supplemental Draft EIS, and 2011 Final EIS for the Project (collectively "EIS Documents"). FRA also considered public and agency comments received during the public comment periods for all of the above documents.

The ROD has been prepared in accordance with the Council on Environmental Quality's (CEQ) regulations implementing the National Environmental Policy Act (NEPA), (40 CFR Section 1505) and FRA's Procedures for Considering Environmental Impacts (64 Fed. Reg. 28545, May 26, 1999). Specifically, this ROD:

- Provides background of the NEPA process leading to the March 2011 publication of the Final EIS, including a summary of public involvement and agency coordination.
- States and reaffirms the Project's Purpose and Need.
- Identifies the alternatives considered by FRA in the EIS Documents.
- Summarizes the alternatives considered but dismissed in the Draft EIS.
- Identifies the Selected Alternative.
- Identifies the environmentally preferable alternative.
- Summarizes environmental benefits and adverse effects.

- Summarizes the comments received on the Final EIS.
- Discusses the measures to avoid and minimize environmental harm and requires a monitoring and enforcement program for all mitigation measures.
- Presents the FRA Decision, determinations and findings on the proposed Project and identifies and discusses the factors that were balanced by FRA in making its decision.

## **1.0 Project Introduction**

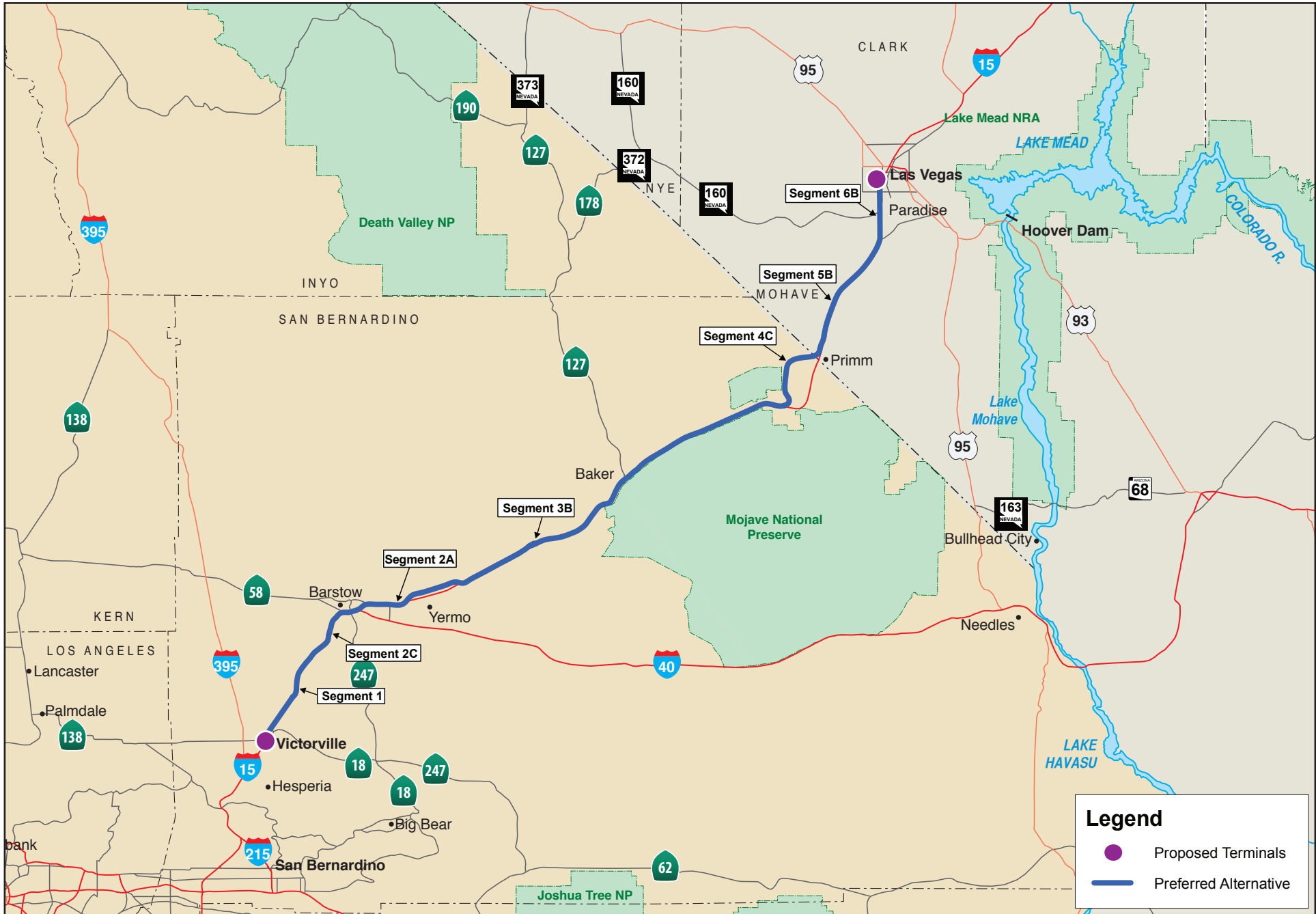
The Applicant has proposed to construct, operate, and maintain a high-speed passenger train system along the approximately 200-mile corridor between Victorville, California, and Las Vegas, Nevada. The Applicant proposes to construct the vast majority of the fully grade-separated, dedicated double track, passenger-only railroad within the Interstate 15 (I-15) highway corridor. Two passenger stations would be built, one in Victorville, the other in Las Vegas; each would be located immediately adjacent to the I-15 corridor. The Project also includes ancillary operations and maintenance facilities as well as utility corridors to link proposed electrical substations to external sources of power to accommodate the preferred electrically-powered technology option as described in more detail below.

**Figure 1** shows the routing of the Selected Alternative rail alignment.

The entire mainline section between Victorville and Las Vegas would incorporate dual tracks, one northbound and one southbound, to support the high ridership and frequency of train operation. The nominal direction of travel would follow the North-American practice of right-hand running. All tracks would be signaled for bi-directional operation should operating in reverse on a track be necessary.

The preliminary Operations Plan assumes that trains would operate between approximately 0600 hours and 2200 hours (6 AM to 10 PM), 365 days per year. The hours of service could be extended if passenger demand warrants additional operation.

The Applicant has proposed using existing, proven intercity high-speed train technology, customized for the unique setting of the corridor. Both diesel-electric multiple unit train, (DEMU) train and electric multiple unit (EMU) train were considered as high-speed train technology options. The DEMU train set is projected to operate at a maximum speed of 125 mph. The EMU train set could have a maximum speed of 150 mph. The EMU option would require the addition of 17 autotransformers and three electrical substations along the route. The autotransformers would be located at approximately 10-mile intervals along the rail alignment.



**Legend**

- Proposed Terminals
- Preferred Alternative



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Project Location

**FIG 1**

Source: CirclePoint, 2011.

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The initial train composition would be a ten vehicle train. Passenger capacities for DEMU trains would be about 478; for EMU trains, which have slightly longer and wider cars, capacity would be about 675 passengers. On either train, one of the ten cars would be configured as an entertainment car.

FRA, as Lead Agency for NEPA compliance, commenced the environmental review process in 2006. Based on anticipated permits and licenses needed for construction and operation of the Project (identified in **Table 1** below), FRA requested and received the participation of the following Cooperating Agencies: STB, FHWA, BLM, and NPS<sup>1</sup>. Specific roles and responsibilities of each federal agency, including permitting agencies, are further described below.

**Table 1: Federal Permits or Approvals Anticipated for Action Alternatives**

| Agency                          | Permit/Approval  |
|---------------------------------|--|
| Federal Railroad Administration | Regulations related to high-speed train operation and safety   |
| Bureau of Land Management       | Right-of-Way   |
| Surface Transportation Board    | Authority to Construct and Operate Railroad  |
| Federal Highway Administration  | Concurrence for Highway Right-of-Way (ROW) Occupancy and/or Disposal<br>Access Justification Report or Access Modification Report <sup>2</sup><br>Concurrence on Project Design Elements Related to Highway Operations |
| U.S. Army Corps of Engineers    | Sec. 404 Permit (waters of the United States)<br>Sec. 401 Certification  |
| U.S. Fish and Wildlife Service  | Section 7 Biological Opinion   |
| Federal Aviation Administration | Determination under 14 CFR Part 77 that the Project does not pose an obstruction to aerospace navigation   |

Source: Circlepoint, 2009-2011.

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<sup>1</sup> The NPS was invited to be a Cooperating Agency because a 1.55-mile long portion of one of the proposed rail segments (Segment 4A) would have traversed lands within the boundaries of the Mojave National Preserve. No other rail alignment or facility was proposed to be located within the Mojave National Preserve or on any other land under NPS control.

<sup>2</sup> The current project design does not include creating new access points to the interstate freeway (I-15), nor is direct access to the I-15 freeway envisioned during construction or rail operations maintenance. However if project designs or plans change to require permanent access modifications to I-15 or temporary direct access for construction, approval of an Access Modification Report would be required.

### **Federal Railroad Administration**

Under 49 U.S.C. 20101 et seq., FRA has authority over the safety of railroads. The Project would use trains and other features that do not comply with current FRA safety regulations, including track and locomotive safety regulations.

FRA will exercise jurisdiction over this issue and all other railroad safety issues during design and operation of the Project. As part of the FRA's oversight and regulation of railroad safety issues, FRA expects that the Applicant comply with, at a minimum, the technical criteria and procedures of FRA's Tier 1 or Tier III Guidelines as developed by FRA's Engineering Task Force of the Passenger Safety Working Group of the Railroad Safety Advisory Committee, FRA's pre-revenue service acceptance testing requirements as outlined in 49 CFR section 238.111, and all other applicable railroad safety regulatory and statutory requirements.

In addition, DesertXpress may become eligible for federal funds through the Railroad Rehabilitation and Improvement Financing Program (RRIF), which is administered by FRA. The RRIF program was established by the Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21) and amended by the Safe, Accountable, Flexible and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) and the Rail Safety Improvement Act of 2008. Under this program, the FRA Administrator is authorized to provide, in the aggregate, direct loans and loan guarantees up to \$35 billion. In general, RRIF funds may be used to (1) acquire, improve or rehabilitate intermodal or rail equipment or facilities including track, bridges, yards, building and shops, (2) refinance eligible debt, and (3) develop new intermodal or railroad facilities.

When an eligible applicant applies for a RRIF loan, numerous preconditions to the issuance of the loan must be met. These include completion of the NEPA process and a determination that the applicant is eligible for financial assistance. Should DesertXpress receive financial assistance through a RRIF loan, it would be required to comply with various Federal laws including compliance with the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act) (42 U.S.C. 4601 et seq.) and its implementing regulations.

### **Bureau of Land Management**

The BLM has approval authority over the use of public lands under their control under 43 U.S.C. 1761, the Federal Land Policy and Management Act (FLPMA). This authority encompasses the granting of transportation rights-of-way, including for rail transportation purposes, as outlined under the ROW regulations at 43 CFR Part 28001

The FLPMA governs the way in which the public lands administered by the BLM are managed. The FLPMA recognizes the value of the public lands, declaring that these lands would remain in public ownership. As stated in Title V, Section 501 of the FLPMA, "[t]he

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Secretary, with respect to public lands...[is] authorized to grant, issue, or renew rights-of-way over, upon, under, or through such lands for...roads, trails, highways, railroads...or other means of transportation, except where such facilities are constructed and maintained in connection with commercial recreation facilities on lands in the National Forest System, or such other necessary transportation or other systems or facilities which are in the public interest and which require rights-of-way over, upon, under, or through such lands.” 43 U.S.C. 1761(6)–(7).

### **Surface Transportation Board**

Under 49 U.S.C. 10901, the STB has exclusive jurisdiction over the construction and operation of new rail lines. Associated with this jurisdiction, the STB has authority to preempt state and local environmental review, land use requirements, and other associated permitting requirements.

In response to a request for a declaratory order filed by DesertXpress, the STB issued a decision in DesertXpress Enterprises, LLC-Petition for Declaratory Order, STB Finance Docket No. 34914 (STB served June 27, 2007) (June 2007 Dec. Order) stating that the Project would not be subject to state and local environmental review, land use, or to other permitting requirements. The STB determined that DesertXpress would first be required to file an application under 49 U.S.C. 10901 for STB authority to build and operate the new line.

In its June 2007 Dec. Order, the STB concluded that construction and operation of DesertXpress’ planned interstate passenger rail line would be within the agency’s jurisdiction under Section 10501 because DesertXpress would be a rail carrier providing interstate common carrier rail transportation. Accordingly, the STB found that the broad preemption at 49 U.S.C. 10501 (b) would attach, and environmental review would be under NEPA and related federal environmental laws and that the individual laws and regulations of California and Nevada, such as the California Environmental Quality Act (CEQA) would not apply.<sup>3</sup>

Subsequent to the March 2009 publication of the Draft EIS, the California-Nevada Super Speed Train Commission and the American Magline Group asked the STB to reopen and reverse the June 2007 Dec. Order. The STB held an oral hearing on the matter in October 2009. In a decision issued on May 6, 2010, the STB reaffirmed its 2007 decision that the

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<sup>3</sup> Although the DesertXpress project does not require a CEQA review, the EIS includes the type of analysis that would have been conducted under the regulations and guidance of CEQA. See City of Auburn v. United States, 154 F.3d 1027, 1031 31 (9<sup>th</sup> Cir. 1998) (City of Auburn). Moreover, state and local agencies and concerned citizens have had ample opportunity to participate in the ongoing EIS process. A number of state agencies have participated in the ongoing EIS process, including Caltrans and NDOT.

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DesertXpress Project falls within the STB's jurisdiction and would require Board authority under 49 U.S.C. 10901.

Aside from these orders and decisions issued from the STB (meaning the Board comprised of three members appointed by the President and confirmed by the Senate), the STB has delegated Cooperating Agency activities for the Project to its Office of Environmental Analysis (OEA).

### **Federal Highway Administration**

Under 23 U.S.C. 111 and 142(f), for the portions of the proposed Project that would be within the existing highway ROW under the jurisdiction of the FHWA, the implementing regulations in 23 CFR 1.23 provide the FHWA authority over approval of temporary or permanent occupancy or use within the boundaries of federal-aid highways. Most critically, the FHWA must conclude that the Project does not pose a hindrance to the ongoing use of the I-15 corridor as an interstate highway. The BLM decision to grant right-of-way for the Project requires this determination by the FHWA.

Throughout the environmental review process, FHWA divisions in California and Nevada coordinated closely with the State Departments of Transportation (Caltrans and the Nevada Department of Transportation) in their respective states. Ultimately, the State Departments of Transportation will need to issue encroachment permits to allow construction of the proposed rail lines within designated freeway right-of-way areas.

### **U.S. Army Corps of Engineers**

Concurrently with the NEPA process, the Applicant initiated the Clean Water Act (CWA) Section 404 permitting process with the USACE in May 2010. The CWA Section 404 sets forth a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. As part of this CWA Section 404 permitting process, the Applicant prepared formal jurisdictional delineation reports for the Ivanpah Valley area and the Las Vegas watersheds. Jurisdictional determinations and issuance of a permit for the discharge of fill material into waters of the United States associated with construction of the DesertXpress Project will be part of the CWA Section 404 permit process administered by the USACE.

In addition to the CWA Section 404 permit, the Applicant will apply for certification under Section 401 of the CWA.<sup>4</sup> Section 401 Certification is administered in California through the Regional Water Quality Control Boards (in the case of the DesertXpress Project, the

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<sup>4</sup> Under the CWA Section 401, every applicant for a federal permit or license for any activity that may result in a discharge to a water body must obtain State Water Quality Certification (Certification) that the proposed activity will comply with state water quality standards. Most Certifications are issued in connection with USACE CWA Section 404 permits for dredge and fill discharge.

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Lahontan Regional Water Quality Control Board) and in Nevada by the Nevada Division of Environmental Protection.

Given the relatively minor agency permitting issues for the Project, the USACE was not invited to participate as a Cooperating Agency for the DesertXpress Project.

### **U.S. Fish and Wildlife Service**

Concurrently with the NEPA process, FRA initiated the Endangered Species Act Section 7 consultation process, pursuant to 50 CFR Part 402. Section 7 of the Endangered Species Act requires all federal agencies to consult with the USFWS for any action that may affect listed species or their designated habitat. 16 U.S.C. 1536. FRA's informal and formal consultation with the USFWS has been ongoing and was instrumental in scoping the biological resource analysis for the EIS Documents as well as for the Biological Assessment (BA) submitted consistent with Section 7 requirements.

FRA developed and submitted a draft BA to the USFWS in August 2010. The BA evaluated direct, indirect, and cumulative effects of the Project on federally listed, threatened, endangered, or proposed listed species and their designated habitat. The USFWS provided specific comments on the August 2010 BA. FRA developed a revised BA in response to those comments and as a result of additional coordination between the USFWS and FRA. FRA submitted the revised BA on the Agency Preferred Alternative to the USFWS in December 2010.

Following USFWS review and additional consultation and coordination, the USFWS issued a Biological Opinion (BO) for the Project on April 26, 2011. The USFWS concluded in the BO that the Project would not jeopardize the continued existence of identified species nor would the Project adversely modify designated critical habitat areas. Consistent with Section 7 requirements, the BO stipulates several reasonable and prudent conservation measures to avoid or reduce potential impacts. These have been incorporated as mitigation commitments; please see **Appendix A** of this ROD. The BO also includes an incidental take statement authorizing activity associated with construction and operation of the Project.

### **Federal Aviation Administration**

The FAA is responsible for the safety of civil aviation. FAA regulations are codified at 14 CFR Parts 1 through 1399 and include FAA's responsibility to ensure the safe, efficient use and preservation of the United States' navigable airspace. FAA describes its Airport Design Standards in FAA Advisory Circular 150/5300-13, Airport Design. Compliance with this Advisory Circular is mandatory for federally obligated airport sponsors and for land uses within designated Runway Protection Zones.



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Rail alignments associated with the Project would be located near existing and proposed aviation facilities, including McCarran Las Vegas International Airport (LAS), the planned Southern Nevada Supplemental Airport (SNSA) near Primm, and a private sport aviation facility near Jean. Under the authority of 14 CFR Part 77, the FAA determines whether proposed new objects/structures would be an obstruction to air navigation near these existing and proposed facilities.

## 2.0 NEPA Process Background

FRA, as Lead Agency for NEPA compliance, commenced the environmental review process in 2006. Based on anticipated permits and licenses needed for construction and operation of the Project, FRA requested and received the participation of the following Cooperating Agencies: STB, FHWA, BLM, and NPS.

**Table 2** below summarizes major NEPA milestones of the Project.

**Table 2: Summary of Major NEPA Milestones**

| Milestone  | Date         |
|--|--------------|
| Notice of Intent & Public Scoping Meetings   | July 2006    |
| Notice of Availability Published/Circulation of Draft EIS/Draft Section 4(f) Evaluation                      | March 2009   |
| Public Hearings: Victorville, Barstow, Las Vegas   | April 2009   |
| Notice of Availability Published/Circulation of Supplemental Draft EIS, Supplemental Section 4(f) Evaluation | August 2010  |
| Public Hearings: Barstow, Las Vegas  | October 2010 |
| Notice of Availability and Publication of Final EIS and Final Section 4(f) Evaluation                        | March 2011   |

Source: FRA, 2006-2011.

The environmental process for the DesertXpress Project began formally in July 2006. Scoping Meetings for the DesertXpress Project were held in August 2006 and a Draft EIS was published on March 27, 2009.

The Draft EIS presented the purpose and need for the Project, the reasonable range of alternatives for rail alignment, station site, maintenance facility, and train technology options, the existing environmental setting, potential effects from construction, and operation, and identified mitigation measures to reduce or eliminate potential adverse environmental effects.

The Draft EIS informed decision makers, interested parties, and the public about the differences and tradeoffs among various alternatives and options. The alternatives were organized to allow the Lead and Cooperating agencies to “mix and match” by choosing various segments and site options in composing a Preferred Alternative. The Draft EIS was circulated for 56 days for public review and comment. Public hearings were held in Las Vegas, Barstow, and Victorville to provide additional opportunity for the public to comment on the Draft EIS.

Subsequent to the publication of the Draft EIS, the Applicant proposed several modifications and additions to address comments received on the Draft EIS and to reduce or avoid significant environmental effects. FRA prepared a Supplemental Draft EIS to evaluate these modifications and additions, which included an additional station site option in Victorville, two new rail alignment options, modifications to the Victorville and Las Vegas maintenance facilities, and rail alignment adjustments.

FRA published the Supplemental Draft EIS on September 3, 2010 and circulated it for a 46 day public review and comment period. FRA held public hearings on the Supplemental Draft EIS in Las Vegas and Barstow to provide additional opportunity for the public to comment.

The information presented in and the comments received on the Draft EIS and Supplemental Draft EIS were considered when preparing the Final EIS. The Final EIS, published April 1, 2011, addressed changes to the DesertXpress Project as a result of public and agency comments on the Draft EIS and Supplemental Draft EIS and an evaluation of the potential environmental effects of the Preferred Alternative. The Preferred Alternative was selected by the Lead and Cooperating Agencies from the range of alternatives presented in the Draft EIS and Supplemental Draft EIS. Mitigation measures for the Preferred Alternative were included in the Final EIS to reduce or eliminate adverse environmental effects of the Preferred Alternative.

### **3.0 Purpose and Need**

As articulated in the Draft EIS and reconfirmed in the Final EIS, the purpose of the privately proposed Project is to provide reliable and safe passenger rail transportation using proven high-speed rail technology between southern California and Las Vegas that is a convenient alternative to automobile travel on the I-15 freeway, or air travel to and from Las Vegas, and that adds transportation capacity in the I-15 corridor.

It is estimated that the Project would divert approximately 3 million annual automobile trips from Interstate 15 (I-15) each year. This transportation shift would reduce air pollutant emissions from automobiles, reduce fuel consumption for automobile use on the I-15 corridor, limit the need to expand the I-15 highway, and improve highway safety.

Future increases in ridership demand for the high-speed train would be handled by adding more trains to the service as needed.

The need for a high-speed rail service stems from several factors: high existing and anticipated increases in travel demand amidst lagging capacity on the I-15 corridor, constraints to the expansion of air travel in Southern California, and frequent accidents in the I-15 corridor. In part, the need this Project will address is the increase in travel demand between southern California and Las Vegas that has placed increasing pressures on the highways and airports serving the region. For motorists traveling to Las Vegas from southern California, the major highway systems, including Interstate 215 (I-215), Interstate 10 (I-10), U.S. Route 395 (U.S. 395), Interstate 210 (I-210)/California State Route 210 (SR 210), and California State Route 138 (SR 138), converge with the I-15 freeway near Victorville. **Figure 2** illustrates this transportation connection. The convergence of major transportation corridors funnels automobiles onto the I-15 freeway corridor, which results in traffic congestion on the I-15 freeway near Victorville and along the I-15 freeway corridor between Victorville and Las Vegas. The number of automobiles traveling on the I-15 corridor between these two locations has been steadily increasing and the projected growth will add more automobiles to the existing roadway system. It is estimated that approximately 75,000 automobiles will use this portion of the I-15 freeway every day in 2015 and up to 100,000 automobiles per day in 2025.<sup>5</sup> Given these vehicle volumes, projections for DesertXpress assuming a Victorville passenger station show an anticipated ridership of over 2.4 million riders during the opening years of operation, increasing to over 6.5 million riders by 2030. Please see Final EIS Sections 1.3.1 and 2.2.2 for further discussion of travel demand and ridership projections.

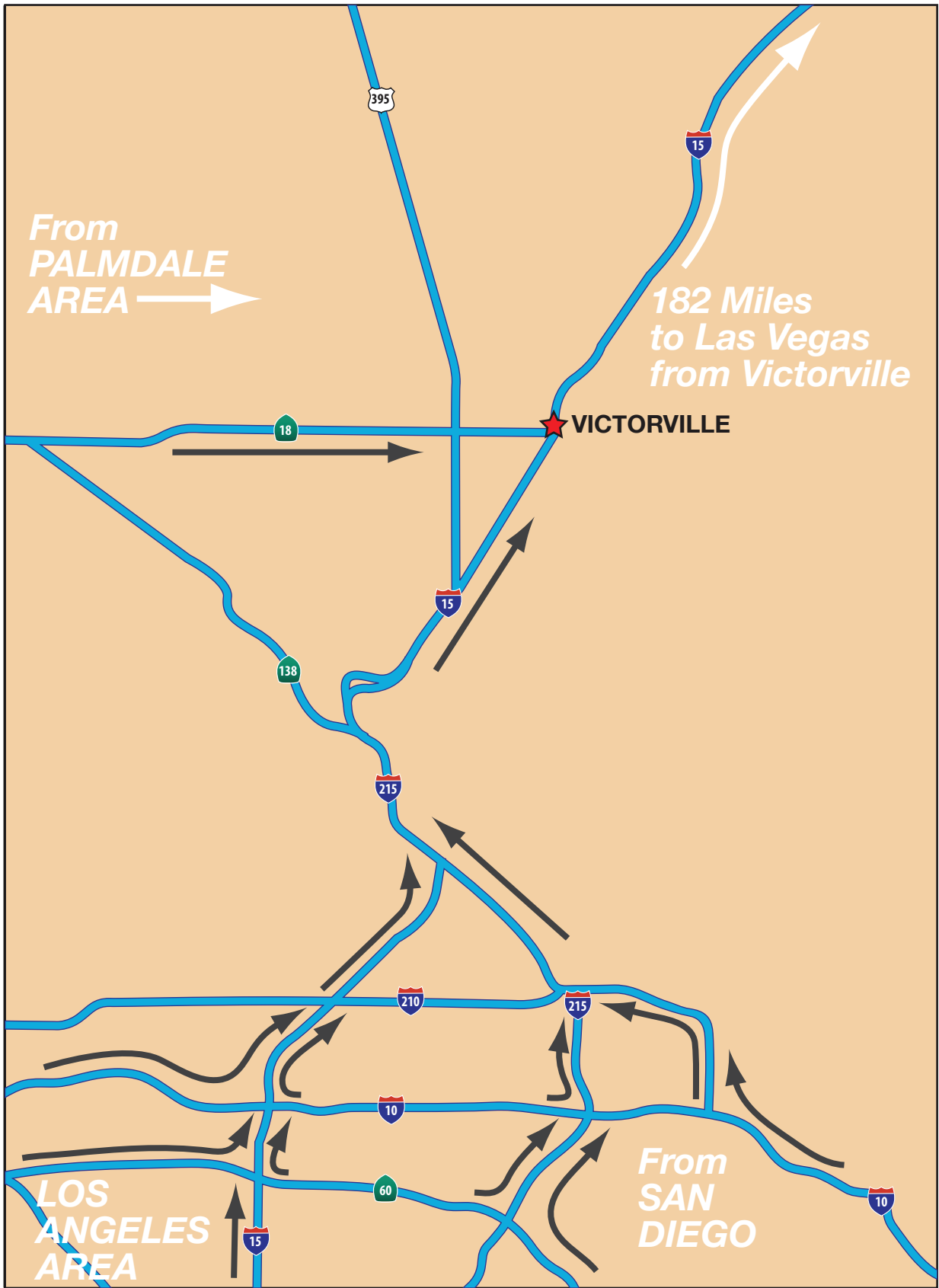
## **4.0 Alternatives**

### **4.1 ALTERNATIVES CONSIDERED AND DISMISSED IN THE DRAFT EIS AND SUPPLEMENTAL DRAFT EIS**

In the EIS Documents, FRA and the Cooperating Agencies considered alternative rail routing alignments, facilities, and technologies. These alternatives were evaluated against a series of environmental, technical, operational, and financial criteria developed cooperatively between FRA, the Cooperating Agencies, and the Applicant and identified in the EIS Documents. Based on a thorough evaluation against these criteria,

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<sup>5</sup> Initial Study/Environmental Assessment, Victorville to Barstow-Add Southbound Mixed-Flow Lane, Caltrans, FHWA, County of San Bernardino, May 2001.



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*Converging Transportation  
Corridors Near Victorville*

**FIG | 2**

Source: Geografika Consulting, 2011.

FRA and the Cooperating Agencies dismissed from further consideration several alternatives, summarized below.

#### **4.1.1 ALIGNMENT**

Several rail alignment segments were considered in the Draft EIS but dismissed from further consideration based on a thorough evaluation of environmental, technical, operational, and financial criteria. These are summarized below.

Between **Victorville and Barstow**, routing options along the existing Burlington Northern Santa Fe (BNSF) railroad were considered but dismissed due to numerous environmental constraints, including potential impacts to environmental justice communities, sensitive biological resources, and historic architectural resources along Historic Route 66.

From **Barstow to Primm**, a routing option following the existing Union Pacific Railroad (UPRR) corridor on new tracks through the Mojave National Preserve was considered but dismissed based on potential effects to sensitive biological resources in the Preserve, the Preserve's status as a Section 4(f) resource and the longer travel time of this route. In addition, the possibility of sharing these tracks was not considered further due to the heavy freight railroad traffic on these tracks, resulting in a substantial impairment to reliable high-speed rail service as well as existing and future freight service.

Between **Mountain Pass and Primm**, a routing option remaining within the I-15 corridor was dismissed due to the existing steep grade of this area and the related adverse effects on rail operations. To create the grade of 4.5% or less in this area, which is required as a technical criteria for the high-speed operations of the Project, extensive grading and/or tunneling would be required, which could disrupt freeway operations during construction and impair an existing hydrological resource, with potential downstream effects.

Within the **urbanized Las Vegas** area, routings outside existing transportation corridors (namely, the I-15 freeway and the UPRR corridor) were considered but dismissed based on extensive areas of existing or planned residential development, which would have required substantial displacements.

#### **4.1.2 FACILITIES**

During public review of the Draft EIS, the Clark County Department of Aviation (CCDOA) advised that the Sloan Road Maintenance and Storage Facility (MSF) would result in a conflict with the location of a proposed "super arterial" roadway that would provide future vehicle access to the planned Southern Nevada Supplemental Airport (SNSA) to be located

north of Primm. As described in **Section 2.2.5** of the Supplemental Draft EIS, the Applicant proposed a modified location for the Sloan Road MSF in response to comments on the Draft EIS. The Supplemental Draft EIS evaluated the “Relocated Sloan MSF,” replacing the Sloan Road MSF considered in the Draft EIS located approximately two miles further south.

### **4.1.3 TECHNOLOGY**

The Applicant considered various proven train technologies for the DesertXpress Project, and sought particularly to identify a system with proven reliability that could be readily adapted to a desert environment and deliver reliable and rapid performance on the long and relatively steep grades along portions of the route. The Applicant found steel-wheel train systems with distributed propulsion (meaning that most of the passenger cars on the train are powered) to be the only viable technology.

A conventional locomotive-hauled train with non-motorized passenger cars was initially studied by the Applicant, but this technology was eliminated after train simulation models projected unsatisfactory results in performance and reliability on the route’s long, steep grades.

The magnetic levitation (maglev) technology option was also considered but rejected because it does not meet the Project’s purpose and need and was therefore not a reasonable technology alternative. In part, the Project’s purpose and need is to provide a “reliable and safe passenger rail transportation using proven high-speed rail technology.” Currently there is no existing high-speed rail train system employing magnetic levitation of the type of intercity service and over a similar distance proposed by the Applicant anywhere in the world, let alone the United States. In addition, designing and constructing such a system would require a substantially different safety regulatory and oversight regime than for existing rail technology as well as the associated change in projected development time. The absence of a high-speed train system demonstrating the technical feasibility of maglev technology and the difference in the safety regulatory approach and Project development creates conflicts with the Project’s purpose and need to select a “proven rail” technology. Magnetic levitation technology would also limit the potential for future system expansion and interoperability with other planned rail systems.

In addition, the Applicant determined magnetic levitation technology is too costly for a private company to implement in terms of design, construction, and operations. While there is a possibility that Applicant may pursue a federal loan, the Project remains privately proposed and the range of reasonable action alternatives were informed by those which that the Applicant is willing to construct and operate, taking into account its legitimate business interests.

## 4.2 ALTERNATIVES CONSIDERED IN THE DRAFT EIS, SUPPLEMENTAL DRAFT EIS, AND FINAL EIS

### 4.2.1 No ACTION ALTERNATIVE

In each of the EIS Documents, FRA and the Cooperating Agencies considered a no-build alternative, which would not provide high-speed passenger rail service between southern California and Las Vegas. Travel demand between the two points would continue to be met by existing modes, including automobile, air, and bus travel. Accordingly, the No Action Alternative is comprised of existing physical characteristics plus planned and programmed (funded) improvements to the freeways and air facility systems serving people traveling between Southern California and Las Vegas. The No Action Alternative assumes the construction and use of several planned and programmed improvements that would increase freeway capacity or otherwise improve freeway operations. Such planned and programmed improvements include I-15 freeway interchange improvements in Victorville and Barstow and several in the Las Vegas areas; widening of the I-15 freeway near Barstow and in Clark County, Nevada. The vast majority of these planned and programmed improvements would occur within or immediately adjacent to the I-15 freeway right-of-way, largely the same physical area in which much of the proposed rail alignment would be constructed and operated. The construction of new freeway lanes would lead to many of the same temporary environmental effects associated with construction of proposed rail alignments, including but not limited to impacts to biological, cultural, and hydrological resources; temporary emissions of localized air pollutants; and other short-term impacts. Operations of such new facilities would result in permanently increased automobile traffic and associated increased levels of noise and air pollutants, permanent impacts to biological, cultural, and hydrological resources, and other effects as described more specifically in **Sections 4.3** and **5.0** below.

### 4.2.2 ACTION ALTERNATIVES: RAIL ALIGNMENT OPTIONS

For evaluation purposes, the distance between Victorville and Las Vegas was divided into seven segments. For each segment, one or more action alternative alignment routing was considered in addition to the No Action Alternative. The various segments were then grouped into the following general categories:

- **Action Alternative A:** primarily in the I-15 median
- **Action Alternative B:** primarily along the north/west side of the I-15 freeway, within the freeway right-of-way, typically a fenced area.
- **Option C:** other action alternative alignment options

**Table 3** summarizes the alignment options considered.

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**Table 3: Summary of Alignment Routings Considered**

| <b>Segment</b>                          | <b>Action Alternative A</b>   | <b>Action Alternative B</b>   | <b>Option C</b>  |
|---|---|---|--|
| 1: Victorville to Lenwood               | Starting from the Victorville Station, <b>Segment 1</b> would run along the west side of the I-15 corridor  |   | NA   |
| 2: Lenwood to Yermo                     | <b>Segment 2 A/B</b> , would cross the Mojave River and run through northern Barstow, then <b>Segment 2A</b> would continue about 1 mile north of I-15 to Yermo | <b>Segment 2 A/B</b> , would cross the Mojave River and run through northern Barstow, then <b>Segment 2B</b> would continue about 0.5 mile north of I-15 to Yermo | <b>Segment 2C</b> , within the I-15 corridor through Barstow; <b>side running</b> and <b>median</b> options considered; then same as <b>Segment 2A</b> from Old Hwy 58 to Yermo. |
| 3: Yermo to Mountain Pass               | <b>Segment 3A</b> : Within I-15 median  | <b>Segment 3B</b> : West of I-15, running alongside freeway, except where modified near Halloran Springs Road   | NA   |
| 4: Mountain Pass to Primm               | <b>Segment 4A</b> : 1.55 miles of alignment would divert from I-15 corridor via the Mojave National Preserve, rejoining I-15 corridor near Primm                | <b>Segment 4B</b> : Through new tunnels northwest of I-15, then overland until rejoining I-15 corridor at Primm   | <b>Segment 4C</b> : similar to Segment 4B, but avoids planned solar energy projects north and west of Primm  |
| 5: Primm to Sloan Road                  | <b>Segment 5A</b> : Within I-15 median  | <b>Segment 5B</b> : Along east side of I-15   | NA   |
| 6: Sloan Road to Las Vegas <sup>6</sup> | <b>Segment 6A</b> : Within I-15 median  | <b>Segment 6B</b> : Varying from east to west side of I-15, except for 1.5 miles in an adjacent county transportation corridor                                    | <b>Segment 6C</b> : Along UPRR Corridor, on new tracks, separate from existing railroad  |
| 7: To Downtown Las Vegas Station        | <b>Segment 7A</b> : Within I-15 median  | <b>Segment 7B</b> : West side of I-15   | <b>Segment 7C</b> : UPRR Corridor, on new tracks, separate from existing railroad  |

Source: CirclePoint, 2009-2011.

### 4.2.3 ACTION ALTERNATIVES: FACILITIES

Built facilities evaluated included passenger stations and operations and maintenance-related facilities. The following action alternatives were considered, along with the No Action Alternative.

- **Victorville passenger station:** Three site options on the west side of the I-15 freeway corridor between Stoddard Wells Road and Dale Evans Parkway.

<sup>6</sup> Option C cannot terminate at the Southern Station but could connect to the other three station site options.



**Victorville Station Sites 1, 2, and 3 (VV1, VV2, and VV3).** For VV3, two site layouts were evaluated (**VV3A** and **VV3B**), differing mainly in the location of surface parking lots.

- **Victorville Operations, Maintenance, and Storage Facility (OMSF):** Two site options (**OMSF 1** and **OMSF 2**), in close proximity to the Victorville station site options on the west side of the I-15 freeway.
- **Baker Maintenance of Way (MOW) facility:** One site option adjacent to the I-15 freeway near the community of Baker.
- **Las Vegas area Maintenance and Storage Facility (MSF):** Four site options: Sloan Road MSF, Relocated Sloan Road MSF, Wigwam Avenue MSF, and Robindale Avenue MSF.
- **Frias Substation:** To provide electrical power in the Las Vegas area for train operations.
- **Las Vegas area passenger station:** Four site options in Clark County/City of Las Vegas (Southern Station, Central Station A, Central Station B, and Downtown Station).

In addition to these permanent facilities, 29 sites for Temporary Construction Areas (TCAs) were considered. Several of these sites would be located within permanent facility areas, such as OMSF and station sites. TCA sites range in size from less than 1 acre to about 15 acres, excepting the larger TCA sites that would be located at permanent facility locations. Every OMSF and Station site evaluated was secondarily considered a TCA with the caveat that only the OMSF and Station sites included in the Selected Alternative would ultimately be used for temporary construction purposes. Other sites would be outside permanent facilities but would be occupied only for the duration of rail construction, estimated to be approximately 3 years. Several of the TCA sites could serve any of the proposed rail alignments for a given area; several, however, were unique to specific alignments. For example, Segment 4C diverges substantially from the other Segment 4 rail alignments; accordingly, TCAs unique to Segment 4C were proposed. Accordingly, the Selected Alternative incorporates 16 of the 29 TCAs considered.

#### **4.2.4 ACTION ALTERNATIVES: TECHNOLOGY OPTIONS**

Two locomotive technologies were evaluated to serve the action alternative alignment and facilities options: DEMU and EMU. The two technologies have similar ROW width requirements and largely the same construction footprint. However, the EMU option has the following added features, all of which have been considered.

- Overhead catenary wires and supports located along the length of the rail alignment.
- Three electrical substations, co-located on maintenance facility sites except for the proposed Frias Substation near Las Vegas.
- Three electrical utility connection corridors between existing power sources and the proposed three electrical substations.
- About 17 transformers located along the rail corridor at about 10 mile intervals.

### **4.3 SELECTED ALTERNATIVE**

The Selected Alternative is the alternative which the FRA finds would most closely align with FRA's statutory mission and responsibilities, giving consideration to economic, environmental, technical and other factors. The Selected Alternative is the same as the Preferred Alternative as identified in the Final EIS.

FRA as Lead Agency consulted with the Cooperating Agencies (FHWA, BLM, NPS, and OEA) and considered the Draft EIS, including the analysis of the No Action Alternative, all action alternatives, and all Project modifications and additions presented in the Supplemental Draft EIS, as well as all public and agency comments received during the review periods for the EIS Documents in identifying the Selected Alternative. The cooperating agencies will issue their own decision documents, as appropriate, consistent with their statutory and regulatory responsibilities.

As further articulated in detail below, the FRA did not identify the No Action Alternative as the Selected Alternative because it would not meet the purpose and need and it would not produce the benefits that would only occur as a result of constructing and operating an action alternative and the associated reduction in automobile traffic from I-15, including reduced traffic congestion, improved air quality, and reduced energy consumption. The No Action Alternative is discussed in each part of the discussion below. FRA concluded that the beneficial effects of any of the Action Alternatives (including reduced traffic, improved air quality, and more efficient use of energy, among others) outweighed the adverse effects associated with constructing the rail line and the passenger stations and maintenance facilities in Victorville and Las Vegas.

The Selected Alternative is composed of certain rail alignments, facilities, and a propulsion technology option, all of which are listed below. Following is a discussion of the reasoning for selections by Project element.

- **Alignments**
  - Segment 1
  - Segment 2C Side Running
  - Segment 3B (Modified)

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- Segment 4A, if legislative action allows; otherwise Segment 4C
- Segment 5B
- Segment 6B
- **Facilities**
  - **Victorville Station:** VV3B
  - **Las Vegas Station:** Las Vegas Central Station B or Las Vegas Southern Station
  - **Victorville OMSF:** OMSF 2
  - **Las Vegas MSF:** Wigwam Avenue MSF
  - **Las Vegas Substation:** Frias Substation
- **Technology**
  - **EMU:** Electric Multiple Unit

### Segment 1

The alternatives evaluated for this segment were the Action Alternative (Segment 1 rail alignment) and the No Action Alternative. As discussed in **Section 4.1.1** above, other alignments from Victorville to Barstow were considered and ultimately rejected from further analysis based on feasibility constraints and possible substantially adverse environmental impacts.

The No Action Alternative is comprised of intersection improvements in the Victorville area that are proposed to improve operations of the I-15 freeway at the local level and the introduction of the High Desert Corridor roadway project, which would ultimately link the Victorville and Palmdale areas, providing enhanced regional mobility. The construction and operation of these facilities would likely result in temporary and permanent physical environmental effects associated with new or expanded freeway facilities. These effects include but are not limited to increased levels of air pollutants and ground disturbance that would likely result in adverse impacts to adjacent biological, cultural, and/or hydrological resources. For Segment 1, the No Action Alternative would result in worsened traffic, air quality, and energy impacts relative to the Preferred/Selected Alternative.

Taking all of the above into consideration, FRA chose the Segment 1 rail alignment action alternative as the Selected Alternative, owing to superior environmental effects in terms of air quality, energy, and traffic.

### Segment 2: 2C Side Running

The Alternatives evaluated for Segment 2 were Segment 2A/2B, Segment 2C Median, Segment 2C Side Running, and the No Action Alternative.

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The No Action Alternative consists of widening a 1-mile portion of I-15 to 6 lanes and reconstructing an I-15 interchange in Barstow. Although not immediately in Segment 2, the High Desert Corridor project (linking Victorville to Palmdale) would likely contribute to increased levels of traffic on the I-15 corridor beyond Victorville, and by extension, between Victorville and Las Vegas.

The City of Barstow has stated to FRA that it is heavily reliant upon visitor-serving commerce (retail outlets, eating and drinking places, and gas stations) for tax revenues. The No Action Alternative is assumed to result in no immediate or direct downward effect on automobile travel between Southern California and Las Vegas; accordingly, the No Action Alternative is projected to have less of a downward economic growth effect on the City of Barstow than any of the Action Alternatives.

Segment 2C, including both the Side Running and Median options, were proposed in direct response to comments/concerns from officials from the City of Barstow with regard to Segment 2A/2B. In April 2009, the City of Barstow submitted numerous comments on the Draft EIS; one specific comment requested that Segment 2 be moved to the I-15 freeway corridor so as to avoid potential impacts to a proposed industrial park in the Lenwood area. The Segment 2C Side Running rail alignment would run within the I-15 freeway corridor and accordingly would avoid any potential for the cited land use conflicts in Lenwood. In its comment on the Draft EIS and in subsequent correspondence, the City of Barstow stated that this land use conflict would discourage development of the proposed industrial park, thereby adversely affecting the tax revenue stream the City anticipates from the possible future development of this area.

Relative to Segment 2A/2B, the Segment 2C Side Running alignment would have fewer adverse land use effects, would avoid impacts to farmland and grazing lands, would affect fewer sensitive cultural resources, would affect fewer linear feet of surface water resources, would have lesser visual quality impacts, and would result in less adverse impacts to sensitive biological resources, including plant and wildlife species/habitat areas. In addition, Segment 2C (Side Running or Median) would allow for a more direct route of travel relative to Segment 2A and Segment 2B, remaining within the I-15 freeway right-of-way, whereas Segments 2A and 2B would have utilized lands not in a current transportation use. In terms of noise, Segment 2C Side Running would have similar or lesser noise effects than Segment 2A/2B, but would result in more severe noise impacts than Segment 2C Median, owing to the side-running alignment's closer proximity to sensitive receptors.

Taking all of the above into consideration, FRA chose Segment 2C Side Running as part of the Selected Alternative. Segment 2C Side Running (similar to all other action alternatives) would lead to the beneficial environmental effects associated with lower levels of traffic, including reduced air pollutant emissions and more efficient use of energy

resources. In addition, Segment 2C Side Running would also have the advantage of fostering beneficial economic growth. Direct and indirect benefits from construction of the rail line would likely accrue to the City of Barstow and the region during the years of anticipated construction. The No Action Alternative has lesser adverse economic growth impacts to the City of Barstow, but FRA believes that the beneficial effects of the Project as a whole would also benefit residents of Barstow. Segment 2C Side Running was also found to be preferable to Segment 2C Median, as constructing the train in the median would be more costly, more difficult to construct and maintain, and would pose more highway and rail operational and safety concerns than the side-running option. The Segment 2C Side Running option would also ultimately be more harmonious with proposed widening of I-15 travel lanes in Barstow.

**Segment 3: 3B (Modified)**

The Alternatives evaluated for Segment 3 were Segment 3A, Segment 3B, Segment 3B (Modified), and the No Action Alternative.

An approximately 10 mile portion of Segment 3B as examined in the Supplemental Draft EIS was further modified in the Halloran Springs area to reduce impacts to sensitive resources in the area and incorporated into the Preferred Alternative identified in the Final EIS. This modification, Segment 3B (Modified) involves rerouting the rail line from the north side of the freeway right-of-way to the south side of the freeway right-of-way and was evaluated in detail in the Final EIS.

The No Action Alternative does not include any proximate programmed transportation system improvements. In much of the I-15 corridor for the extent of the Segment 3 area, the freeway offers just two travel lanes in each direction, although work has been completed on the addition of programmed truck climbing lanes on steep grades, in particular on eastbound I-15 east of Baker towards Halloran Summit. There are no planned but unfunded improvements for this corridor identified in long-range planning documents. While there are no planned or programmed capacity improvements specific to this Segment, the I-15 freeway through this area is part of a larger system influenced by changes made in offsite locations. The No Action Alternative would result in increased traffic over either of the Action Alternatives, as traffic levels are expected to continue to increase without the introduction of passenger rail service. Along these lines, the No Action Alternative would also result in worsened air quality and a less efficient use of energy resources.

In regard to the Action Alternative rail alignments, Segments 3B (Modified) and 3A would result in essentially similar potential environmental effects in the areas of land use, growth, farmlands and grazing lands, utilities and emergency services, traffic, visual resources, geology and soils, hazardous materials, air quality, and energy resources.

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For the following environmental topic areas, Segments 3B (Modified) and 3A differ in potential effects relative to cultural resources, hydrology and water resources, and biological resources, as described below.

Compared to Segment 3A, Segment 3B (Modified) has somewhat greater potential to affect archaeological resources eligible or assumed eligible for listing in the National Register. This is due largely to the disturbed nature of the freeway median in which Segment 3A would have been constructed. Freeway construction either removed or severely damaged archaeological resources in what is now the freeway median. The vast majority of Segment 3 traverses non-urbanized areas; consequently, lands adjacent to the freeway, such as in the area proposed for Segment 3B (Modified), are somewhat more likely to yield intact resources than freeway median areas. However, Segment 3B has been designed to avoid both direct and indirect effects on sensitive cultural resources identified in Segment 3, which meet criteria for Section 4(f) protection.

Segment 3B (Modified) would affect more linear feet of water resources than Segment 3A. This is due in part to the location of Segment 3B at lesser distances from such resources. While Segment 3A would be bounded on both sides by freeway lanes, Segment 3B (Modified) would have freeway lanes only to one side, allowing for greater proximity to existing water resources. In addition, Segment 3B (Modified) would impact 2.7 acres of the 100-year floodplain, relative to zero acres for Segment 3A.

While some effects are similar between Segments 3B (Modified) and 3A (including the extent to which the Project imposes a barrier to wildlife movement), Segment 3B (Modified) would result in a greater extent/degree of biological resource impacts for many types of resources. This is the result of Segment 3B's closer proximity to substantial resource areas outside freeway right-of-way as well as the degraded/limited nature of resources within freeway right-of-way.

Constructing Segment 3A in the median would be more costly, more difficult to construct and maintain, and would pose more highway and rail operational, safety, and maintenance concerns than Segment 3B (Modified). In addition, Segment 3B (Modified) was selected because it would be located immediately adjacent to the I-15 freeway, would better allow for possible future widening and improvement activities on I-15 relative to Segment 3A, and reduces impacts to known sensitive resources.

Taking all of the above into account, FRA chose Segment 3B (Modified) as part of the Selected Alternative, acknowledging that the benefits of Segment 3B(Modified) outweigh the impacts relative to Segment 3A in terms of biological, cultural, and hydrological resources. FRA has also identified mitigation measures to address and minimize the potential adverse impacts of Segment 3A.

**Segment 4: 4A, if legislative action allows; otherwise 4C**

The Alternatives evaluated for Segment 4 were Segment 4A, Segment 4B, Segment 4C, and the No Action Alternative.

The No Action Alternative does not include any proximate programmed capacity expansion improvements. A new I-15 Joint Point of Entry is to be constructed between Nipton Road and Yates Well Road, replacing the existing agricultural inspection facility near Yermo. Otherwise, there are no planned or programmed improvement or expansion projects contemplated for the I-15 corridor between Mountain Pass and the California/Nevada state line.<sup>7</sup> Accordingly, effects associated with the construction/expansion of freeway facilities would not be expected to occur in this vicinity.

In much of the I-15 corridor for the extent of the Segment 4 area, the freeway offers just two travel lanes in each direction. There are no programmed or planned capacity-enhancement improvements for this corridor in any long-range planning document. The I-15 freeway through this area is nonetheless part of a larger system influenced by changes made in offsite locations. Proposed freeway expansions on I-15 in Nevada (see the discussion of Segment 5 below) could have effects on portions of Segment 4. With no planned or programmed capacity improvements for this area, the No Action Alternative would result in increased traffic over any of the Action Alternatives, as traffic levels are expected to continue to increase without the introduction of passenger rail service. The No Action Alternative would also result in worsened air quality and the less efficient use of energy resources.

For several environmental topic areas, the three Action Alternatives would result in similar potential environmental effects. These topic areas include growth, utilities and service systems, transportation, geology, hazardous materials, air quality, noise and vibration, and energy.

The three Segment 4 Action Alternatives differ in terms of the potential effects relative to land use and community impacts, farmlands and grazing lands, visual resources, cultural resources, hydrology and water resources, and biological resources, as described below.

Segment 4C was developed specifically to avoid the Preserve, the Ivanpah Desert Wildlife Management Area (DWMA), and the planned solar power energy project. A 1.55 mile portion of Segment 4A would traverse the Mojave National Preserve near Nipton Road as well as a portion of the nearby Ivanpah DWMA. Segment 4B would avoid the Preserve

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<sup>7</sup> Segment 4C extends into the State Nevada for about 2 miles, the remainder of the 14 to 20 mile length of the Segment 4 action alternatives would be in the State of California. For this reason, roadway improvements to the I-15 corridor in Nevada are considered as part of the No Action Alternative for Segment 5.

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and the DWMA, but would create a direct conflict with a planned solar power project located to the west of Ivanpah Dry Lake that could not be mitigated.

The Segment 4C rail alignment is the longest route of the Segment 4 rail alignment options. At 20 miles, Segment 4C is about 6 miles longer than Segment 4A. Segment 4C diverges substantially from the existing I-15 freeway right-of-way and is less compatible with the undisturbed, natural land uses. In a contrast, except the portion that would encroach into the Mojave National Preserve, Segment 4A would be primarily located within the existing I-15 freeway right-of-way, which is disturbed by the existing transportation corridor and has more compatible land uses.

Both Segment 4B and 4C pass through a large grazing allotment located to the north of I-15. This allotment includes lands managed by the BLM as well as portions of the Clark Mountain Unit of the Mojave National Preserve. The NPS advised FRA that water sources within this grazing allotment as a whole are largely concentrated within lands of the Clark Mountain Unit. The introduction of a rail line into this allotment would result in potential severance effects; given the known location of water sources, the NPS indicated that the rail line would also have the effect of intensifying cattle usage/grazing activities within the Clark Mountain Unit. Segment 4A avoids this area and therefore has substantially fewer potential impacts to Farmlands and Grazing.

Segment 4C and Segment 4B each traverse currently undeveloped areas, resulting in a more substantial overall visual change. Except for the 1.55 mile portion of Segment 4A that would traverse the Preserve, Segment 4A otherwise most closely adheres to the visually disturbed I-15 corridor area.

Compared to Segments 4A and 4B, Segment 4C has somewhat greater potential to affect archaeological resources eligible or assumed eligible for listing in the National Register. This is due in part to the fact that Segment 4C would diverge the furthest from the freeway of all alignment options considered. Segments 4A and 4B are closer to the freeway corridor and freeway adjacent areas that have seen a somewhat greater level of disturbance than the lands identified for Segment 4C. Because Segment 4C is longer than the other segments and traverses lands less likely to have been disturbed, Segment 4C is more likely to involve intact cultural resources than the other segments.

Segment 4C involves substantially greater impact to water resources, as measured in linear feet, relative to the other routing options. This is a function of the location of Segment 4C closer to water resources as well as its longer length. Segment 4C involves a higher number of stream crossings than either Segment 4A or 4B. Similarly, Segment 4C may impact more sensitive plant and desert tortoise habitat than either of the other routing options.



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While Segment 4C would avoid the Ivanpah DWMA, Segment 4C would nonetheless result in adverse effects to desert tortoise habitat north of the I-15 freeway. However, legislative action is required to grant a ROW through the Mojave National Preserve to implement Segment 4A. As of June 2011, no legislation is pending that would facilitate any such grant.

Stakeholder agencies in the area have recommended selection of Segment 4A over Segment 4C. In a February 2011 letter to FRA, the NPS acknowledged the lack of legislative authority at present to grant such a ROW, but indicated the NPS's preference for Segment 4A because the vicinity of Segment 4A would adhere more closely to the I-15 corridor than Segment 4C and would traverse lands that have been largely disturbed, unlike portions of Segment 4C. In addition, in its April 2011 BO, the USFWS recommended that FRA select Segment 4A over Segment 4C, citing that Segment 4A would result in far fewer impacts to desert tortoise and would result in less fragmentation/disturbance of desert tortoise habitat relative to Segment 4C. Segment 4B was not chosen as part of the Selected Alternative because of the insurmountable conflict of this alternative with a solar energy project.

Segment 4A has several environmental advantages over Segment 4C, and as such, Segment 4A is selected by the FRA as the superior alignment alternative in consideration of the economic, environmental, and technical factors used to identify the Selected Alternative. However, since Segment 4A cannot be implemented at present due to a lack legislative authorization, FRA also included the Segment 4C rail alignment as part of the Selected Alternative, as a contingency. In making this selection, FRA considered the adverse effects of Segment 4C (including biological, cultural, and hydrological resources impacts) and adopted mitigation to address these impacts.

### **Segment 5: 5B**

The Alternatives evaluated for Segment 5 were Segment 5A, Segment 5B, and the No Action Alternative.

In terms of the No Action Alternative, several transportation system improvements are programmed or planned for the area between Primm and Sloan. Programmed improvements include a new interchange at mile 3 of I-15, intended to serve the SNSA, even though planning efforts for the SNSA were halted in 2010. A planned but unfunded improvement would widen I-15 from six lanes to eight lanes between the California State line and Sloan Road.

The construction and operation of these roadway system improvements would likely result in temporary and permanent physical environmental effects associated with new or expanded freeway facilities. Ground disturbance within the I-15 corridor associated with the expansion of freeway lanes would have many similar effects to biological, cultural, and

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hydrological resources as those associated with constructing a rail alignment in the same general location.

For several environmental topic areas, Segment 5B and 5A would result in generally similar potential environmental effects. These topic areas include land use, growth, farmlands/grazing lands, utilities and service systems, transportation, visual resources, geology, hazardous materials, air quality, noise and vibration, and energy.

The Segment 5 alignment routing options differ in terms of potential effects relative to cultural resources, hydrology, and biological resources, as described below. Compared to Segment 5A, Segment 5B has somewhat greater potential to affect archaeological resources eligible or assumed eligible for listing in the National Register. This is due largely to the disturbed nature of the freeway median in which Segment 5A would be constructed. Freeway construction has been found to have either removed or damaged archaeological resources in what is now the freeway median. The vast majority of Segment 5 traverses non-urbanized areas; consequently, lands adjacent to the freeway, such as in the area proposed for Segment 5B, are somewhat more likely to yield intact resources than freeway median areas.

In terms of hydrology, the two alignment routings are generally similar, but Segment 5B would impact about 1 acre of the 100-year flood plain, whereas Segment 5A would involve no use of the 100-year flood plain.

Owing to its distance from the freeway and thus closer proximity to relatively undisturbed lands, Segment 5B would result in more substantial impacts to biological resources (in particular, desert tortoise habitat) than Segment 5A. Other notable biological resource effects are similar, including the extent to which the Project would impose a barrier to wildlife movement.

Constructing Segment 5A in the median would be more costly, more difficult to construct and maintain, and was determined by the FHWA and the Nevada Department of Transportation (NDOT) to pose more highway and rail operational concerns than Segment 5B. The Segment 5B rail alignment would be on the outside edge of the I-15 freeway right-of-way, more readily accommodating of the anticipated future widening of the I-15 freeway.

Taking all of the above considerations into account, FRA chose Segment 5B for the Selected Alternative, acknowledging that the potential adverse effects associated with Segment 5B are outweighed by the substantial feasibility, operations, maintenance, and safety concerns of Segment 5A. FRA has also identified mitigation measures to address and minimize the potential adverse impacts of Segment 5B.

**Segment 6: 6B**

The Alternatives evaluated for Segment 6 were Segment 6A, Segment 6B, Segment 6C, and the No Action Alternative.

In terms of the No Action Alternative, NDOT has programmed or planned numerous capacity expansion/system enhancement projects for the I-15 corridor between Sloan and metropolitan Las Vegas. These improvements include widening the I-15 corridor from 6 to 10 lanes between Sloan Road and Blue Diamond Road, several new or reconstructed interchanges, and improvements to adjacent roadways. Between I-215 and I-515 to the north (near downtown Las Vegas), NDOT has programmed widening the I-15 freeway from 10 to 14 lanes. These improvements, albeit considerable, would primarily serve existing and anticipated future traffic needs in the metropolitan Las Vegas area. These improvements would not expand freeway capacity outside the metropolitan area and thus would have marginal benefit to traffic on the larger I-15 corridor towards southern California.

The construction and operation of these roadway system improvements would likely result in temporary and permanent physical environmental effects associated with new or expanded freeway facilities. These effects include but are not limited to increased levels of air pollutants and adverse impacts to any adjacent or proximate biological, cultural, and/or hydrological resources. When in operation, these improvements are expected to lead to additional automobile traffic, which would result in related increased air pollutant emissions and continued inefficient use of energy resources.

For several environmental topic areas, the three Segment 6 Action Alternative routing options would result in generally similar potential environmental effects. These topic areas include growth, farmlands/grazing lands, utilities and service systems, transportation, visual resources, geology, hazardous materials, air quality, and energy.

The Segment 6 routing options differ in terms of potential effects relative to land use, cultural resources, hydrology and water resources, noise and vibration, and biological resources, as described below.

Near McCarran International Airport, the alignment options differ in terms of potential effect relative to preserving adequate clearance under “one engine inoperative” (OEI) conditions associated with aircraft on takeoff. Segment 6A would be the closest of the three rail alignments to the runway and would result in the most substantial impact relative to OEI. Segment 6B is further west of the airport than Segment 6A, resulting in less intrusion into the OEI area compared to Segment 6A. Given its substantial distance from the airport, Segment 6C was found to be outside the OEI area of concern; however, the Union Pacific Railroad, which owns the corridor in which Segment 6C is proposed,

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advised FRA that it would not allow the construction of additional tracks for DesertXpress in its corridor. This represents a substantial land use conflict for Segment 6C.

Much of Segment 6 is in the developed metropolitan Las Vegas area. Segments 6A and 6B traverse the core of metropolitan Las Vegas; extensive development throughout this area has resulted in substantial disturbance and consequentially, FRA found relatively few intact cultural resources eligible or assumed eligible for listing in the National Register. Freeway construction and freeway adjacent development has been found to have either removed or damaged archaeological resources. On the other hand, Segment 6C would follow the Union Pacific Railroad corridor from Sloan toward central Las Vegas, following a somewhat less developed route. Accordingly, Segment 6C has the greatest potential to result in effects to cultural resources owing to the relatively less disturbed nature of the Union Pacific Railroad corridor, particularly near Sloan.

Segment 6B would affect more linear feet of water resources (about 3,900 feet) than Segment 6A (zero feet) or Segment 6C (77 feet). Segment 6B would have freeway lanes only to one side, allowing for greater proximity to existing water resources than Segment 6A, which would be bounded on both sides by freeway lanes. In addition, Segment 6B would utilize more acreage of the 100-year floodplain than either Segment 6A or 6C.

Segment 6B would have fewer impacts and severe noise and vibration impacts on sensitive receptors compared to Segment 6A. While Segment 6B would have impacts to sensitive receptors to the west of the I-15 corridor, Segment 6A (median) would have impacts to sensitive receptors on both the west and east sides of the I-15 corridor. Segment 6C would result in no noise or vibration impacts; it would traverse an existing rail corridor that does not include a substantial number of nearby sensitive receptors.

Owing to greater distance from the freeway and thus closer proximity to relatively undisturbed lands, Segments 6B and 6C would result in more substantial impacts to biological resources (in particular, desert tortoise habitat) than Segment 6A. Other biological resource effects are generally similar, including the extent to which the Project would impose a barrier to wildlife movement.

Taking all of the above into account, FRA chose Segment 6B for the Selected Alternative. FRA acknowledges that the adverse effects identified for Segment 6B are outweighed by other factors, including the infeasibility of constructing Segment 6C in the Union Pacific right-of-way, the substantial feasibility and safety concerns of constructing and operating

Segment 6A in the median.<sup>8</sup> FRA has also identified mitigation measures to address and minimize the potential adverse impacts of Segment 6B.

### **4.3.1 FACILITIES**

As part of composing a complete Selected Alternative, FRA identified facilities needed for rail construction and operation.

#### **Victorville Station and Maintenance Facility Site Options - Victorville Station Site 3B and OMSF2**

FRA and the Cooperating Agencies evaluated a total of 4 Victorville Station site options (VV1, VV2, VV3A, and VV3B) and two Victorville maintenance facilities (OMSF 1 and OMSF 2).

FRA and the Cooperating Agencies also considered the No Action Alternative, which would not construct a new high-speed rail passenger station and a new ancillary maintenance facility in Victorville. Freeway system improvements would be constructed as discussed above with regard to Segment 1. The No Action Alternative would result in ongoing expanded use of the I-15 freeway corridor with no reduction in traffic associated with the introduction of high-speed passenger rail service. The No Action Alternative would entail few if any of the physical environmental impacts associated with any of the action alternatives, as transportation demand in the I-15 corridor would continue to be served by existing modes (auto, bus, airplane) with no foreseeable need to construct transportation-related facilities in the Victorville area. However, the No Action Alternative would result in increased traffic over either of the Action Alternatives, as traffic levels are expected to continue to increase without the introduction of passenger rail service. Along these lines, the No Action Alternative would also result in worsened air quality and a less efficient use of energy resources.

Given the proximity of the Victorville station and maintenance facility site options, the action alternatives would result in generally similar environmental effects for most topics considered. Areas in which the action alternatives would result in substantially different effects are summarized below.

Passenger traffic associated with VV3 (both A and B) and VV2 would result in local intersection impacts that can be adequately mitigated. Expected passenger traffic associated with VV1 would result in local intersection impacts that cannot be adequately avoided or lessened with mitigation measures.

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<sup>8</sup> As further articulated below, the Southern and Central B Stations were included in the Selected Alternative. Consequently, the rail alignment would terminate with Segment 6. Therefore, the Selected Alternative does not include any Segment 7 rail alignment.

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Relative to other action alternatives, VV3 (both A and B) and OMSF2 would result in substantially greater impacts in terms of linear feet of affected water resources and alteration of existing drainage patterns. This is because these sites are located over an existing natural wash.

Relative to the other site options considered, VV3 (A or B) and OMSF 2 would impact a greater total acreage of desert tortoise habitat, related in part to the larger size of VV3 (A or B) and the presence of the aforementioned wash within the facility footprints.

FRA thus ultimately chose VV3B for the Selected Alternative due to the reduced traffic impacts at local intersections and cumulative effects compared to VV1 and VV2. Furthermore, VV3B was selected because it avoids locating the parking areas and structures beneath the LADWP electric utility corridor, as associated with VV3A.

In selecting VV3B for the Victorville Station, FRA also opted for its paired, immediately adjacent maintenance facility site option, OMSF2. OMSF 1 was rejected due to its 6-mile distance from VV3B to allow for a greater efficiency of land use and more efficient rail operations. An additional benefit of the selection of VV3B is that it is the closest of the three station options to the City of Barstow, and accordingly, residents of both the City of Victorville and the City of Barstow would be realistic candidates for operational period jobs at the station and/or the maintenance facility.

### **Las Vegas Station and Maintenance Facilities – Southern Station or Central Station B; Wigwam Avenue MSF, and Frias Substation**

FRA and the Cooperating Agencies evaluated a total of four Las Vegas area station site options (Southern, Central A, Central B, and Downtown); four maintenance facility sites (Sloan Road, Relocated Sloan Road, Wigwam Avenue, and Robindale Avenue); and a substation site (Frias Substation). Two of the maintenance facility sites (Sloan Road and Relocated Sloan Road) included substations and associated electrical utility corridors needed to deliver electrical power to the Project from the existing energy network in the event the EMU technology option was selected. The Wigwam Avenue and Robindale Avenue facility sites did not include substations or electrical utility corridors. Accordingly, a stand-alone substation site (Frias Substation) was also evaluated so that either the Wigwam Avenue or Robindale Avenue sites could be selected in the event the EMU technology was also selected.

Following publication of the Draft EIS, the Sloan Road site was found to be incompatible with proposed roadway improvements associated with the planned Southern Nevada Supplemental Airport (SNSA). Owing to this conflict, FHWA and NDOT requested that the facility site be relocated. To this end, the Applicant identified a new site for the facility (Relocated Sloan Road MSF); the new site was evaluated in the Supplemental Draft EIS.

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Because of the conflict with the planned roadway improvements associated with the SNSA, FRA rejected the Sloan Road site from consideration as part of the Selected Alternative.

For these and all built facilities, FRA and the Cooperating Agencies also considered the No Action Alternative, which would not construct a new high-speed rail passenger station and new ancillary maintenance facilities in Las Vegas. In the area proposed for these built facilities, freeway system improvements would be constructed as discussed above with regard to Segment 6. The No Action Alternative would result in ongoing expanded use of the I-15 freeway corridor with no reduction in traffic associated with the introduction of high-speed passenger rail service. The No Action Alternative would entail few if any of the physical environmental impacts associated with any of the action alternatives, as transportation demand in the I-15 corridor would continue to be served by existing modes (auto, bus, airplane), taking into consideration planned expansions and improvements. However, the No Action Alternative would result in increased traffic over either of the Action Alternatives, as traffic levels are expected to continue to increase without the introduction of passenger rail service. Along these lines, the No Action Alternative would also result in worsened air quality and a less efficient use of energy resources.

As noted in the Final EIS, the environmental effects associated with the station sites are generally similar with a few notable differences, further discussed below.

The Southern Station is in close proximity to the southern end of the Las Vegas Strip as well as McCarran International Airport. The Southern Station site is undeveloped and would not require displacement or demolition of any existing development. There is also no residential development in proximity to the Southern Station. The Southern Station would also result in an overall shorter alignment length of about 2 to 6 miles when compared to the Central A/B or Downtown station sites. As most of Segment 6B through metropolitan Las Vegas would be placed on elevated structures within or immediately adjacent to the I-15 corridor, the Southern Station would avoid the need to construct a substantial amount of elevated trackway that would be needed to access the Central or Downtown station sites.

The Central A and B stations are also proximate to the visitor-serving attractions of the Las Vegas Strip. The Central B station would require the displacement of existing industrial businesses and is near residential development; an apartment complex lies immediately across the Union Pacific Railroad tracks adjacent to the Central B site. Central A and B require a smaller facility footprint than the Southern Station and would produce less stormwater runoff.

The Downtown Station would require the longest track length of all the station sites considered and would terminate the train the furthest from the visitor-serving attractions of the Las Vegas Strip.

FRA included the Las Vegas Southern Station as well as the Central Station B site as part of the Selected Alternative. While the environmental effects of both station sites were fully analyzed, FRA opted to allow for flexibility in the design-build process while simultaneously addressing the assumed lower cost to construct at the Southern Station site (due to lower overall track mileage).

FRA then selected the Wigwam Avenue MSF as the Las Vegas area maintenance facility site. The Wigwam Avenue MSF site option was selected because it would result in fewer impacts to sensitive biological resources compared to the Relocated Sloan Road MSF and Robindale Avenue MSF site options.

As the Wigwam Avenue MSF would not include a substation or utility corridor on site, the Frias Substation would be required in addition to this MSF to provide electricity to the rail alignment. The Frias Substation would be located west of the I-15 freeway at the intersection of West Frias Avenue and South Dean Martin Drive. The Frias Substation is located immediately adjacent to an existing electrical transmission line.

Because FRA selected action alternatives for the rail alignment and the built facilities, the Selected Alternative also incorporates associated Temporary Construction Areas (TCAs). TCA sites were identified specific to various rail segments and/or facilities. In identifying specific rail segments and facilities, FRA included associated TCAs as part of the Selected Alternative. The rail segments and facilities associated with the Selected Alternative entail the need for a total of 16 TCAs, a subset of the 29 evaluated. Several TCA sites are co-located on the sites of permanent facilities.

### **4.3.2 TECHNOLOGY**

FRA and the Cooperating Agencies considered the EMU and DEMU technology options as the two proven train technologies, having rejected other technologies as cost-prohibitive for a private project or unsuitable to provide reliable high-speed service given the terrain. The No Action Alternative was also considered, consisting of all planned and programmed transportation system improvements as identified in Final EIS **Section 2.3.1.1**.

Both the DEMU and EMU options would result in beneficial effects relative to the No Action Alternative. The use of either technology option would reduce the number of automobiles on I-15, improving traffic conditions, reducing auto-related air pollution, and resulting in a more efficient use of energy resources. The No Action Alternative would perpetuate the existing transportation system and not provide any new alternative that could reduce auto travel between Southern California and Las Vegas.

Relative to the DEMU technology, the EMU technology would result in faster top and average train speeds, which would reduce overall travel time and would thus be expected to have a positive effect on projected ridership. The EMU trainsets also serve larger passenger capacities than the DEMU trains, further enhancing ridership and contributing



to a further reduction in freeway vehicle miles traveled. The EMU's greater reduction in freeway vehicle miles traveled relative to the DEMU allows for related improvements in terms of energy consumption and air pollutant emissions. However, the EMU option requires additional facilities not necessary with the DEMU option. These include utility corridors linking Project facilities to external sources of electricity, the catenary system needed to provide continuous electric power to the trains along the entire route, a total of 17 autotransformers located at intervals immediately adjacent to the alignment, and a free-standing electrical substation in the Las Vegas area (at Frias Avenue). The additional facilities and catenary system would result in the EMU option having greater visual effects than the EMU option.

Considering the EMU would result in greater ridership, an estimated 1.4 million more riders than the DEMU option by 2030, and have the greatest potential benefit in terms of air quality and energy, which would outweigh the greater visual effects of the EMU, FRA chose the EMU over the DEMU for the Selected Alternative.

#### **4.4 ENVIRONMENTALLY PREFERABLE ALTERNATIVE**

The Council on Environmental Quality (CEQ) regulations implementing NEPA require that a ROD specify the alternative or alternatives considered to be environmentally preferable.<sup>9</sup> "Environmentally preferable" is defined as "the alternative that will promote the national environmental policy as expressed in the NEPA, Section 101."<sup>10</sup> Ordinarily this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative that best protects, preserves, and enhances historic, cultural, and natural resources.

FRA, FHWA, BLM, NPS and OEA identified an environmentally preferable alternative in Chapter 2.5 of the FEIS.

In determining an environmentally preferable alternative, FRA and the Cooperating Agencies considered all action alternatives as well as the No Action Alternative. FRA and the Cooperating Agencies weighed and balanced the physical environmental effects associated with the action alternatives as well as those associated with the No Action Alternative. FRA determined that the adverse environmental effects associated with the Selected Action Alternative were less substantial than the consequences associated with the No Action Alternative in terms of air quality, energy, and traffic, and thus identified an action alternative as environmentally preferable.

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<sup>9</sup> 40 CFR 1505.2

<sup>10</sup> Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, 46 FR 18026 (March 23, 1981).

In addition, numerous economic, environmental, technical and other factors led the FRA to deviate from the environmentally preferable alternative in favor of the Selected Alternative identified above. The environmentally preferable alternative identified by FRA and the Cooperating Agencies is discussed in detail below:

#### **4.4.1 ALIGNMENT: ENVIRONMENTALLY PREFERABLE ALTERNATIVE**

**Segment 1:** Segment 1, the only action alternative in this location, is environmentally preferable.

**Segment 2:** 2C, Median. The “median option” for Segment 2C reduces the degree of noise, vibration, and visual effects from the perspective of the northern side of the I-15 corridor through Barstow. Similarly, lands in the freeway median area are more highly disturbed (as a result of freeway construction) relative to areas alongside the freeway or outside the I-15 corridor entirely. To this end, the Segment 2C Median alignment would result in the lowest level of impacts to biological, cultural, and hydrological resources, owing to substantial existing ground disturbance in the I-15 freeway median. However, Segment 2C Median would result in noise and vibration impacts occurring on both sides of the I-15 corridor, not solely on the north side, because it would be close to additional sensitive receptors. In addition, constructing the train in the median is more costly, is more difficult to construct and maintain, and poses more highway and rail operational and safety concerns than the side-running options in general.

**Segment 3:** 3A (Median). Outside the urbanized areas, Segment 3A typically results in fewer impacts to biological and cultural resources, insofar as the median of the freeway is usually a highly disturbed area with relatively few resources. However, in the Halloran Springs area, the median option would result in a greater degree of effects to sensitive resources relative to Segment 3B (Modified). Moreover, Segment 3A’s location in the median would be more costly and difficult to construct and maintain and poses more highway and rail operational and safety concerns than side-running options.

**Segment 4:** 4A, via Nipton Road. Segment 4A is the shortest of the three options for Segment 4, and adheres most closely to the I-15 corridor, but a 1.55 mile portion of Segment 4A would traverse the Mojave National Preserve near Nipton Road. Segment 4A would avoid and/or minimize many of the impacts associated with Segment 4C, including fragmentation of wildlife/habitat areas, severance of grazing lands, and impacts to hydrological features. Segment 4C was designed to avoid the approved Ivanpah Solar Electric Generating System (ISEGS) utility project.

As described above, FRA has included Segment 4A as the Selected Alternative and Segment 4C as a contingent Selected Alternative in the absence of legislation permitting the implementation of Segment 4A. At present there is no legal mechanism for the NPS to grant a transportation right-of-way use through the Mojave National Preserve.

Nevertheless, both the NPS and the USFWS in its BO stated a preference for Segment 4A over Segment 4C. As of May 2011, however, no legislation is pending before Congress that could, if enacted, allow the use of the Preserve as a transportation right-of-way.

**Segment 5:** 5A (Median). Outside the urbanized areas, constructing and operating the train in the freeway median (where Segment 5A would be located) typically results in fewer impacts to biological, cultural, and hydrological resources, because the developed/disturbed nature of the median has eliminated or compromised the integrity of such resources. However, Segment 5A would be more costly and difficult to construct and maintain and would pose more highway and rail operational and safety concerns than Segment 5B, running along the freeway corridor.

**Segment 6:** 6A (Median). Segment 6 comprises an area that transitions from relatively undeveloped desert in the south to the core of metropolitan Las Vegas in the north. Outside the urbanized areas, constructing, and operating the train in the freeway median, as proposed in Segment 6A, would typically result in fewer impacts to biological, cultural, and hydrological resources, because the developed/disturbed nature of the median has eliminated or compromised the integrity of such resources. However, Segment 6A would be more costly and difficult to construct and maintain and poses more highway and rail operational and safety concerns than either of the side-running options considered (Segments 6B and 6C).

#### **4.4.2 FACILITIES**

**Victorville Station Site Option:** VV2. This site has a smaller footprint than both VV3A and VV3B; both VV2 and VV3B (the latter included in the Selected Alternative) and avoids potential land use conflicts with lands beneath Los Angeles Department of Water and Power overhead electrical utility lines. The selection of VV2 would result in significant traffic impacts to the Stoddard Wells Road interchange, but these impacts could be mitigated successfully. VV3B was identified as preferable because Caltrans expressed concern about VV2 having potential conflicts with planned freeway improvements in the area.

**Victorville OMSF Site Option:** OMSF 2 (same as Selected Alternative). In identifying VV2 as the environmentally preferable station site option, the proximity of OMSF 2 to VV2 makes it the environmental preferable Victorville OMSF option.

**Las Vegas Station:** Generally, the four Las Vegas Station Site options do not substantially differ in terms of potential environmental impacts. All Las Vegas Station options would be located within the existing urban context of the metropolitan Las Vegas area. However, the Central Station B and Downtown Station sites would result in the displacement of industrial uses, whereas the Central Station A and Southern Station sites are currently used for surface parking or are undeveloped, with no business

displacements. The Southern Station would allow for the shortest overall rail length while achieving reasonable proximity to the visitor-serving attractions of the Las Vegas Strip and also proximity to McCarran International Airport.

**Las Vegas Maintenance and Storage Facilities:** Wigwam MSF and Frias Substation (same as Selected Alternative). Although the Wigwam MSF option requires the relocation of existing businesses, the Robindale MSF site is closer to residential development, posing a potential land use conflict. Moreover, the Relocated Sloan Road MSF site is outside the boundary of urban infrastructure districts, such as water and wastewater, thus requiring either connections to urban infrastructure or costly transport of water/sewage to and from the site.

#### **4.4.3 TECHNOLOGY**

The EMU technology option is both the Selected Alternative and the environmentally preferable alternative because the EMU option would result in greater ridership and have the greatest potential benefit in terms of air quality and energy.

### **5.0 Summary of Potential Effects and Measures to Avoid and Minimize Harm**

FRA and the Cooperating Agencies conducted a comprehensive review and analysis of the potential impacts of the Preferred Alternative in the Final EIS, building upon the impact analysis of the Draft and Supplemental Draft EIS documents. This included impacts to both natural and human resources. Consistent with NEPA, FRA and the Cooperating Agencies identified and compared both adverse and beneficial effects associated with the Preferred Alternative, all other action alternatives and the No Action Alternative. The effects of the Selected Alternative (which is the same as the Preferred Alternative from the Final EIS), which is approved as the “Project” in this ROD, are summarized below.

#### **Beneficial Environmental Effects**

- Reduce traffic along the I-15 freeway
- Economic growth near station areas
- Reduced air pollutant emissions, resulting in improved operational period air quality
- Reduced operational period energy consumption

#### **Adverse Environmental Impacts:**

- Sensitive biological resources, including protected species and habitat areas
- Cultural resources, including archaeological resources
- Hydrologic resources

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- Increased traffic near stations
- Land use and community impacts, including business displacement
- Water supply and service
- Noise level increase
- Emissions of air pollutants during construction
- Disruption/severance of grazing land allotments

Consistent with 40 CFR 1505.2(c), all practicable means to avoid or minimize environmental harm from the Project have been identified and included as mitigation measures in **Appendix A**, which are formal commitments associated with Project approval.

In designing, constructing, and operating the proposed railroad, the Applicant is required to adhere to all mitigation measures described **Appendix A**. FRA and the Cooperating Agencies will incorporate this requirement in Project approvals.

Consistent with 40 CFR 1505.3, FRA as Lead agency and certain Cooperating Agencies will monitor construction and operation of the Project to ensure that all Agency decisions are carried out. This will include but is not limited to a comprehensive mitigation and monitoring plan that FRA and certain Cooperating Agencies will require and oversee as a means to ensure that all commitments identified in **Appendix A** are upheld during construction and operation of the Project. It is anticipated that the mitigation and monitoring plan, comprised of the mitigation measures in **Appendix A**, will be developed by the Applicant in close coordination with FRA and the Cooperating Agencies. The Applicant will submit the completed plan for FRA review and approval prior to implementation. In approving the comprehensive mitigation monitoring plan, FRA will coordinate with relevant agencies on mitigation issues within their specific area of expertise. This will include FAA's Regional Administrator's Office, Airports Division, and Flight Standards Division for construction activities near McCarran International Airport in Las Vegas and the proposed Southern Nevada Supplemental Airport between Primm and Jean, Nevada.

### 5.1 LAND USE AND COMMUNITY IMPACTS

Land use and community impacts could occur if the Project resulted in incompatibility with adjacent land uses, incompatibility with land use plans, a substantial number of housing units displaced, extensive community disruption/severance, or a substantial number of environmental justice communities crossed or within one mile of facilities.

Where the Project is within or close to the existing I-15 corridor, the Project is most typically compatible with adjacent land uses. The Project is generally compatible with several land uses typical along the I-15 corridor, including industrial lands, most public facilities, and certain commercial uses. Lower compatibility is associated with both

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Segment 4A and Segment 4C. Segment 4A would traverse through a portion of the Mojave National Preserve; both Segment 4A and Segment 4C would result in low compatibility with BLM Multiple Use Class M and L lands. At several locations along the Project corridor, residential development is located in close proximity to the I-15 freeway, in some locations without any protective sound barriers or other separation. Such existing residential uses are considered incompatible with the existing freeway use. The Project's addition of a secondary transportation use in the freeway corridor would increase the degree of existing incompatibility. Where the Project would have a noise impact, the installation of soundwalls that fully mitigate identified impacts is a commitment associated with project approval. Mitigation is also provided to fully address other compatibility impacts, including locations where the DesertXpress rail alignment would conflict with an existing or proposed aviation use; see additional discussion below. **Appendix A** of this ROD details the mitigation measures detailed in the Final EIS and incorporates these mitigation measures as formal commitments associated with Project approval.

Similarly, effects related to compatibility with land use plans are highly location-specific. For much of the Project corridor, existing land uses are consistent with what governing land use plans permit. As noted above, the additional transportation use is generally compatible with several existing land uses; by extension, the Project is also compatible with planned land uses. One exception to this relates to the extensive amount of land identified for residential uses outside of established communities. In particular, substantial areas of land along the I-15 corridor near Segment 3B are designated for residential use in governing land use plans. Both Segment 4A and Segment 4C would have low compatibility with residential land use designations near Mountain Pass along the I-15 freeway corridor. However, very little residential development exists in these areas. The lack of necessary infrastructure in these areas, particularly related to water delivery, strongly suggests that any additional residential development in these isolated areas would be at a very small scale, thus leading to minimal future compatibility concerns.

Potential incompatibility with existing and proposed aviation facilities were the only significant adverse land use effects identified in the analysis requiring mitigation. A mitigation measure was modified to address a potential identified conflict between the DesertXpress rail alignment and the "one engine inoperative" zone associated with Runway 25R at McCarran Las Vegas International Airport. The modified mitigation measure would ensure that the rail alignment does not penetrate the one-engine inoperative zone. In addition, this ROD includes a modified mitigation measure to address identified conflicts between the DesertXpress rail alignment in a designated Runway Protection Zone (RPZ) for the planned Southern Nevada Supplemental Airport (SNSA) near Primm. The modified mitigation measure would involve further

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coordination with FAA during the Project's detail design phase to ensure the Applicant complies with FAA Airport Design Standards.

FRA also notes that planning for the SNSA was indefinitely suspended in June 2010 with no clear indication as of June 2011 as to when work may resume. In the event that the SNSA project is more formally canceled or modified, this mitigation measure may be changed. **Appendix A** of this ROD incorporates these mitigation measures as formal commitments associated with Project approval.

The Project would not require the removal or displacement of any housing units. There are no existing housing units within the path of the rail alignment, nor in areas where permanent facilities or temporary construction areas are proposed. The extent of displacement is limited to business displacement in metropolitan Clark County in the locations of the Wigwam Avenue MSF and Las Vegas Central Station B. The Applicant would be responsible for complying with all applicable federal, state, and local laws pertaining to the displacement of these businesses.

A severance or community disruption impact would occur if any element of the Project resulted in the physical division of an existing community. With the exception of a portion of Segment 2C east of Barstow and most of Segment 4C, the entire rail alignment would be located within the existing I-15 corridor. All of the rail alignment would be fully grade-separated and would otherwise not pose any new barrier or physical division in a community. Where the alignment deviates from the I-15 corridor, such as the eastern reaches of Segment 2C or all of Segment 4C, grade-separations would still be required to maintain local access, limiting the potential for any severance effect to occur. Further, no Project facility would cause or result in community disruption or severance.

An effect related to environmental justice would occur if the adverse environmental effects of the Project were disproportionately borne by one or more defined "environmental justice" communities. These are defined as U.S. Census block groups with majority populations of lower-income people or ethnic minorities. The analysis identified numerous environmental justice communities in the immediate Project area between Victorville and Las Vegas. In several locations, portions of the rail alignment and certain permanent facilities (such as VV3B) would be located within or immediately adjacent to an environmental justice community which could result in adverse environmental effects in terms of air quality, noise, and traffic impacts. However, required mitigation, as detailed in **Appendix A**, will avoid or minimize any residual environmental effects so there is no potential for disproportionate air quality, noise, and traffic impact to environmental justice communities in the vicinity of the Project. The Project would in fact result in several beneficial impacts to regional air quality and traffic that would be of a general benefit, including to environmental justice communities.

**Appendix A** of this ROD details the land use and community impact mitigation measures, which are formal commitments associated with Project approval. No residual impacts from the Project are anticipated after implementation of mitigation.

## **5.2 GROWTH**

Growth impacts could occur as a result of the Project in association with changes to permanent employment, removal of growth obstacles, fostering transit-oriented development, or effects to economic vitality.

The Project's stations and maintenance facilities would provide several hundred new permanent job opportunities in and near their respective communities. The Victorville Station and maintenance facilities would create approximately 361 to 463 permanent jobs in the area. In the Las Vegas area, the Las Vegas Station and maintenance facilities would create approximately 154 to 251 permanent jobs. These permanent jobs could cause an increase in spending in each area, resulting in a secondary regional economic benefit.

Lack of utilities and urban facilities are the most common impediments to growth of undeveloped areas. The Project would traverse significant areas of undeveloped lands that have little to no utilities or urban services, it would not extend utilities to these areas in a way that would remove an impediment to growth. The Project would construct additional transportation, electrical and communications infrastructure; however, this infrastructure would not remove an impediment to growth because it would not be readily available to adjacent land uses, with the exception of areas in close proximity to stations and maintenance facilities. Such facilities would all be located within already urbanized areas or areas planned for urbanization.

The Project could foster limited transit-oriented development (TOD) within the vicinity of the station facilities, but the amount is anticipated to be small. Unlike other rail lines, the Project would primarily serve non-work trips between the two stations; use of the rail line for frequent commute trips is expected to be minimal. Notwithstanding, the Project could potentially attract people to live in the near vicinity of one of the stations in order to take advantage of high-speed rail service between the two ends. Although anticipated to be small, there is potential for the Project to result in beneficial TOD effects within the vicinity of the stations.

The addition of new permanent jobs through operation of the Project may indirectly affect the economic vitality of the local economy in the greater Victorville and metropolitan Las Vegas areas. With new employment opportunities, spending in the areas could increase, thus contributing to local economic growth, potentially of benefit to surrounding areas.

The Project's economic effects in the City of Barstow elicited substantial commentary. With its comments on the Supplemental Draft EIS, the City of Barstow submitted a report



assessing the economic impact of DesertXpress to the City of Barstow (“Barbieri Report”). After careful consideration and analysis of the Barbieri Report, FRA identified concerns over the methodology of conclusions of this report in its own economic study prepared by regional economist John Husing, Ph.D. (“Husing Study”; Final EIS Appendix F-E), which was prepared for FRA to provide further insight into the potential economic impacts of the Project on the City of Barstow. The Husing Study acknowledged that over the long term, rail operations are projected to result in a modest negative influence on the Barstow economy. The Husing Study notes that the Barstow economy is heavily dependent upon revenues generated from taxable retail sales attributed to people driving through Barstow via the I-15 freeway to and from Las Vegas, the Colorado River, and other regional destinations. Taxes collected from fuel sales and retail stores catering to passing travelers contribute substantially to the City’s revenues. With the anticipated shift of freeway-related traffic to the high-speed passenger train, the Husing Study projected fewer automobile passengers would travel through Barstow, which would in turn reduce the City’s capture of tax revenues associated with certain visitor-serving uses. However, the Husing Study also demonstrated that the Project would not be expected to substantially alter the volume of tractor-trailer traffic through Barstow since DesertXpress trains would carry only passengers, not freight. Therefore, there would be no foreseeable downward influence on the substantial complement of Barstow’s tax revenue attributable to high-volume sales of diesel fuels and services to commercial operators. While some adverse economic growth effects would be experienced in Barstow, the projected effect is well below a level that would result in secondary physical environmental effects, such as urban decay. Notwithstanding, the Applicant has proposed a voluntary mitigation measure entailing the close coordination with the City of Barstow and San Bernardino County economic development authorities in an effort to match available construction period and permanent jobs with appropriately qualified local residents.

With a subsequent comment letter on the Final EIS, the City of Barstow included a second report from its economist (“Barbieri Commentary”) that sought to rebut several conclusions of the Husing Study. To this end, FRA commissioned a subsequent review to address issue raised within the Barbieri Commentary (“Husing Review”); the results of this review are included as **Appendix B** to this ROD. The Husing Review directly addresses each substantive point of the Barbieri Commentary and provides additional detail and evidence to support FRA’s previous conclusions regarding the economic impact of DesertXpress upon the City of Barstow.

### **5.3 FARMLANDS AND GRAZING LAND**

Impacts to farmlands and grazing lands could occur if the Project directly uses farmlands, is in such proximity to farmland to have an indirect effect, or severs or otherwise impairs the use of grazing lands.

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The Project would not directly impact any farmlands. Approximately 0.008 acres of farmland would be indirectly impacted by the Project due to the alignment's proximity to an orchard in the Newberry Springs area. Construction activities would result in a temporary increase in dust that could affect those portions of the orchard closest to the rail alignment. Measures requiring the Applicant to acquire conservation easements over agricultural lands of equal quality procured at a 1:1 ratio would mitigate these impacts.

The rail alignment would cross through several designated grazing land allotments, all within California. Approximately 442 acres of grazing lands would be directly and permanently converted to transportation uses, assuming the construction of Segment 4C. Most of this acreage consists of the VV3B site (205 acres) and the Segment 4C rail alignment north of I-15 in the Mountain Pass area (176 acres). Segment 4A would greatly reduce the direct effect on grazing lands because it would avoid impacts to grazing lands in the Mountain Pass area by following the existing I-15 freeway ROW rather than traversing a grazing allotment.

Indirect impacts to grazing lands may result when the Project has secondary effects, such as severance of a larger grazing allotment that could limit movement on either side of the rail alignment. The Project may cut off or impede livestock access to water sources or result in the removal of livestock fencing, which would allow livestock to trespass or become lost. Specifically, Segment 4C may create a barrier within the Clark Mountains Allotment, which includes lands within the Mojave National Preserve, in addition to BLM-managed lands. Segment 4C could have the effect of concentrating livestock closer to the water sources of the allotment, which are disproportionately located on NPS lands in the Mojave National Preserve. This could in turn result in overuse of the Preserve via grazing activities. Segment 4A would avoid these indirect effects on grazing lands in the Mountain Pass area. Mitigation is provided to address these indirect effects; the BLM and NPS indicated to FRA that an acceptable mitigation would be for the Applicant to purchase the Clark Mountain Allotment, effectively ceasing grazing activity in this area. Alternate mitigation, in lieu of purchasing the allotment, would require modifications to the rail alignment to permit adequate opportunities for cattle undercrossing of the rail alignment such that no concentration of use in the Mojave National Preserve would be foreseeable.

**Appendix A** of this ROD details the farmlands and grazing land mitigation measures, which are formal commitments associated with Project approval. Implementation of the mitigation measures outlined in the Final EIS would minimize effects to farmlands and grazing lands, including the indirect effects to grazing lands and activities. However, even with mitigation, the Project would result in residual impacts from the direct conversion of 442 acres of grazing lands to transportation uses.

## 5.4 UTILITIES/EMERGENCY SERVICE

Impacts to utilities/emergency services could occur if the Project resulted in an exceedance of the capacity of utility or service systems or if it conflicted with existing utility distribution systems, such as pipelines or electrical transmission lines.

Permanent facilities (passenger station sites and maintenance facilities) would require extended infrastructure, such as electricity and gas, water, sewer/wastewater, stormwater, and solid waste disposal as well as public services like police, fire, and emergency response. Electrical energy would also be needed as a power source for the EMU trains. The Project includes two electrical utility corridors near Victorville and Baker that would be used to deliver electrical power from existing transmission lines to Project facilities. (In the Las Vegas area, the Frias Substation is immediately adjacent to and would be directly connected to the existing Arden-Tolson electrical transmission line; no separate utility corridor would be needed). Both Southern California Edison (SCE) and Nevada Power have indicated the ability to provide electrical service. Southwest Gas Corporation (SGC) anticipates that current operating conditions are sufficient to provide gas service to the stations and maintenance facilities.

Water services to the Victorville Station and maintenance facility (OMSF 2) would be provided by Victorville Water District (VWD). Due to the distance of the Victorville Station and maintenance facility from existing VWD water mains, construction and/or expansion of new water facilities (including storage facilities, wells, and/or transmission and distributions pipes) would be required for service. Mitigation would require the Applicant to pay for connection and/or user/service fees established by the utility provider.

Las Vegas Valley Water District (LVVWD) would provide water services to the Las Vegas Station and maintenance facility. The location of Project facilities and the amount of water demanded by these facilities would not require the construction of any new infrastructure. Mitigation requiring the Applicant to obtain a “water commitment” from the LVVWD would ensure these facilities would have enough water for operational use. Further mitigation would require the Project facilities to minimize water usage through the incorporation of water saving devices wherever required or feasible and to use drought-tolerant landscaping at all facilities.

Wastewater services at the Victorville Station and maintenance facility sites would be provided by the Victor Valley Wastewater Reclamation Authority (VWRA). The VWRA anticipates that the additional demand created by the Project facilities would not require additional wastewater equipment, facilities, or personnel, but a service area expansion would be required to serve these facilities. Mitigation would require the Applicant to bear the cost of connection and/or user/service fees established by the utility provider.

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The Clark County Water Reclamation District (CCWRD) would provide wastewater services to the Las Vegas passenger station and maintenance facilities. CCWRD indicated that it has adequate capacity to serve the Project's Las Vegas facilities without the need of additional equipment, facilities, or personnel.

The Project would have the potential to generate stormwater at stations, maintenance facilities, and along rail segments. Mitigation would require rail segments within the I-15 freeway right-of-way to tie into the existing freeway stormwater conveyance devices, upsizing such conveyances as warranted by the amount of the incremental increase. Where it is not possible to connect to existing freeway stormwater conveyance devices, mitigation requires the Applicant to coordinate with local agencies to develop appropriate stormwater conveyance structures/systems to serve such areas.

Construction and operation of the station and maintenance facilities could convert unimproved lands to paved and/or built facilities, decreasing permeability and potentially creating stormwater runoff. Mitigation is included to develop appropriate conveyance systems.

Landfills in the vicinity of the Project were found to have sufficient capacity to accommodate the predicted solid waste generated by both the construction and the operation of the Project. Construction waste would include a mix of hardscape, plant material, and metal. The Applicant has indicated some hardscape, such as tunneling spoils, will be repurposed for sub-grade or as ballast in track construction. For any construction waste not recycled or reused, area landfills indicate that the one-time generation of Project-related construction waste could be accommodated given the landfill's substantial remaining capacity.

The Project would be served by police and fire agencies in several involved jurisdictions. Several of these agencies advised FRA that the Project could lead to an increased need for services and expressed concern about protocols during emergency events. Mitigation is included to require Applicant payment of fees for the incremental demand associated with the Project and to develop a comprehensive emergency operations plan, including a training of local first responders.

The Project rail alignments and other facilities could overlap/intersect with numerous utility conveyance systems, such as gas pipelines, electric transmission lines, and water/wastewater infrastructure. Some overlaps could result in safety concerns, such as where a Project rail segment intersected with a high-pressure gas pipeline. Mitigation is included to avoid or minimize such conflicts, including protecting infrastructure in place or including minor relocations of facilities.

Incorporation of the mitigation measures mentioned above would minimize permanent effects related to the adequate provision of utilities and public services as well as conflicts

with utility crossings. **Appendix A** of this ROD details the utility/emergency service mitigation measures, which are formal commitments associated with Project approval. There would be no permanent or residual impacts to utility/emergency services following implementation of the mitigation measures.

## 5.5 TRAFFIC AND TRANSPORTATION

The Project passenger stations and maintenance facilities would be the only points of access for people to interface with the DesertXpress system. Project railways would be fully grade separated from all existing roadways. Moreover, the Project would require no modifications to existing roadways affecting capacity. Therefore, the Project could only result in impacts to traffic and transportation if Project-related traffic resulted in a substantial traffic increase to (1) freeway mainlines or (2) at intersections near station areas.

By providing an alternative to automobile transportation between southern California and Las Vegas, operation of the Project would reduce traffic volumes on the I-15 freeway, particularly during peak weekend travel periods. The Project would reduce approximately 500 vehicles per peak hour in the peak direction in the opening year, increasing to 1,400 vehicles in the horizon year. This would relieve congestion along the I-15 freeway between Victorville and Las Vegas, resulting in a beneficial effect. The reduction in traffic volumes on freeway mainlines could potentially improve safety in a freeway corridor known to have a higher-than-average accident rate, attributable in large part to excessive levels of congestion. Traffic reduction also contributes to improved air quality, as fewer vehicles on the road would result in a corresponding reduction emission of air pollutants.

In addition to these beneficial effects, rail operations would also have certain adverse traffic effects. Project trackways, trains, and associated facilities could constitute potential new visual obstructions for motorists, thus impairing roadway safety. Mitigation is included to ensure that final design-build plans take into account such potential obstructions and include design solutions to avoid or minimize all such effects.

Near Project stations, increased traffic on roadways associated with passenger activity could degrade the level of service at selected intersections. The increased traffic associated with passenger stations would worsen delays, potentially resulting in a degraded level of service. Mitigation was developed in close coordination with the FHWA and both State DOTs that would successfully address all identified effects. Mitigation measures would reduce the delay at affected intersections so that all intersections would operate at an acceptable level of service. **Appendix A** of this ROD details the traffic/transportation mitigation measures, which are formal commitments associated with Project approval. No permanent or residual traffic and transportation adverse impacts are anticipated from the Project after implementation of mitigation measures.

## 5.6 VISUAL RESOURCES

The Project would create a new rail alignment and associated facilities through a variety of existing landscapes, primarily within or immediately adjacent to an existing freeway corridor. The degree of effects to visual resources in the Project area was evaluated in terms of the established visual impact criteria of two of the Cooperating Agencies, the BLM and the FHWA.

Visual effects were found to vary widely, depending on two key factors based on the Federal agency criteria: the existing visual quality of particular locations and the proposed design at such locations.

In urbanized areas including Barstow, Baker, Primm, Jean, and metropolitan Las Vegas, motorists and pedestrians on nearby and adjacent local roadways and motorists traveling on the I-15 freeway would represent the primary viewer groups of the Project. In these areas, the Project would introduce railway elements such as elevated trackways and passing trains into motorists' views from the I-15 freeway and would not substantially degrade the relatively low visual quality of the I-15 freeway area.

The majority of lands within the urbanized areas are designated as BLM Class III or IV, which allow for partial to major modifications to the existing character of the landscape. With few exceptions, visual effects of the Project would be mostly consistent with BLM criteria. In addition, the Project is mostly consistent with the FHWA's visual quality/sensitivity guidelines in urban areas.

The second type of landscape within the Project area is found outside existing urban areas, where motorists traveling on the I-15 freeway would be primary viewers of the Project. In areas where the rail alignment would be adjacent to the existing I-15 freeway, the concrete barriers, trackways, bridges, overpasses, underpasses, and passing trains would detract from the vividness, intactness, and unity of views from the I-15 freeway towards the non-urbanized lands with low lying shrubs, desert soils, and rolling hills. The overhead catenary features and fencing structures would hinder views of the existing landscape features. Since the majority of these views would remain relatively unobstructed when a train is not present, the overall visual quality rating for the undeveloped portions of the Project rail alignment would remain moderate.

The third type of landscape within the Project area is non-urbanized lands outside the I-15 freeway corridor, particularly the area near Segment 4A and Segment 4C. Segment 4A would adversely affect the visual quality within the boundaries of the Preserve. However, both FRA and the NPS have noted that the area proposed for the Segment 4A rail alignment, including areas within the Preserve, has already been disturbed and used for a local mine and as a ROW for several underground utilities. Segment 4A would also remain in relatively close proximity to the I-15 freeway corridor as it passes through the

Preserve. Segment 4C would diverge several miles from the I-15 freeway corridor and traverse undeveloped lands. However views of the Segment 4C rail alignment would be relatively distant appearing as a distinctly subordinate visual feature in the overall landscape. The intactness, unity, and vividness of the existing environment would be slightly diminished due to the placement of the Segment 4C rail alignment in an undeveloped area, thereby reducing the existing high quality visual environment to a moderate visual environment, representing an adverse effect.

Overall, the Project would reduce the existing visual quality outside some urban areas and would be somewhat inconsistent with the FHWA's visual quality/sensitivity guidelines. Mitigation measures would require that design-build plans include treatments to ensure that rail, station, and maintenance facility features would be minimally disruptive to the surrounding environment. Further mitigation would require contour grading to reduce the visual appearance of cut and fill slopes associated with the Project and light/glare reduction strategies to reduce adverse impacts to visual resources.

**Appendix A** of this ROD details the visual resources mitigation measures, which are formal commitments associated with Project approval. Implementation of the mitigation measures outlined in the Final EIS would minimize effects to visual resources. However, the Project would result in the permanent introduction of new elements to the Project area, ultimately resulting in a permanent visual change within the viewshed, despite the incorporation of the aforementioned mitigation measures. The primary residual impacts would be expected to occur in areas with the greatest visual quality and sensitivity, such as areas designated as having high visual quality or areas designated as BLM Class I and II lands. While the majority of the Project rail alignment would be within the I-15 freeway, residual visual impacts to the sensitive visual environments north of Yermo and north of the Clark Mountains would experience the greatest residual visual effects following mitigation.

## **5.7 CULTURAL AND PALEONTOLOGICAL RESOURCES**

Impacts to cultural and paleontological resources would occur if the Project would directly or indirectly affect cultural resources eligible or assumed eligible for listing on the National Register of Historic Places (National Register), or adversely affect paleontological resources.

FRA conducted a literature review, pedestrian surveys, and extensive consultation with BLM archeologists and tribal representatives to catalogue existing cultural resources potentially affected by the Project as well as all other action alternatives. All of these resources are archaeological sites. No historic architectural resources (buildings or other structures) were found in the APE for the Project and thus no such resources would be affected. FRA evaluated paleontological resources following the guideline of the Society of

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Vertebrate Paleontology using published geologic and paleontological literature and museum databases.

Construction of the Project would involve extensive ground disturbance, primarily but not exclusively within the I-15 freeway corridor. Construction and operation of the freeway have, in many cases, compromised the intactness and/or integrity of many archaeological resources closest to the freeway. Generally, the degree of intactness of such resources increases with distance from the previously disturbed freeway corridor.

In fulfillment of obligations under Section 106 of the National Historic Preservation Act (16 USC 470 et seq., as amended), a Programmatic Agreement (PA) was developed for the Project. The PA identifies the process for the formal determination of eligibility of cultural resources. Following an approach consistent with 36 CFR 800.4(b)(2), the PA stipulates that formal eligibility determinations will be made after the Selected Alternative is identified and ratified by the Lead and Cooperating Agencies via Records of Decision or other appropriate decision documents on the proposed action. The PA also sets forth numerous other requirements, including the potential for Tribal monitoring of ground-disturbing activities, cultural resource training for all construction personnel, and periodic reporting of findings during construction. The PA also includes an outline of the Historic Properties Treatment Plan, a requirement under Section 106, which will provide specific avoidance or minimization and, as appropriate, curation/disposition measures for every identified and potentially affected resource. The PA further includes the outline for the required "Plan of Action" under the Native American Graves Protection and Repatriation Act (25 USC 3001 et seq., "NAGPRA"). The Plan of Action will establish protocols to address the potential discovery of human remains during the ground disturbance associated with construction.

The Final EIS includes a fully-executed copy of the PA, signed by the Lead and Cooperating Agencies, the State Historic Preservation Officers (SHPOs) for California and Nevada, and the Project Applicant. In addition, one Native American Tribe, the Las Vegas Paiute, signed as a concurring party. The Area of Potential Effect (APE) for the Project assuming construction of Segment 4A includes a total of 225 cultural resources comprised of 37 resources previously determined eligible; 90 resources assumed to be eligible; and 98 that were either previously found ineligible or are otherwise assumed ineligible. The total number of cultural resource in the APE for the Project assuming construction of Segment 4C includes a total of 239 <sup>11,12</sup> comprised of 38 resources previously determined

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<sup>11</sup> The Final EIS incorrectly identifies 254 sites within the APE for the Project (with Segment 4C). The correct number of cultural resources sites in the APE for the Project with Segment 4C is 239 sites.

<sup>12</sup> The Final EIS incorrectly identifies 8 sites within the APE for Segment 4A. The correct number of cultural resources sites in the APE for Segment 4A is 11 sites as identified in Table 3.7-9 of the Draft EIS.



eligible; 92 resources assumed to be eligible; and 109 that were either previously found ineligible or are otherwise assumed ineligible.<sup>13</sup>

Final determinations of the eligibility of archaeological resources are phased under the PA. All of these resources could be directly or indirectly affected by train construction. The aforementioned stipulations of the PA set forth a program of extensive mitigation designed to avoid and/or minimize adverse effects to these resources. All effects to cultural resources associated with the Project can be mitigated through avoidance, evaluation and data recovery, or other mitigation through investigation and monitoring during construction as described above.

Construction of the Project would likely result in adverse effects on paleontological resources in situations where (1) the Project rail alignment or facility would cross paleontologically sensitive geologic units exposed at the surface or (2) where the Project rail alignment or facility would be situated on relatively recent fill materials that overlie highly sensitive materials, and ground disturbance would be deep enough to affect underlying sensitive strata. Mitigation is included to avoid or minimize such effects.

**Appendix A** of this ROD details the cultural and paleontological resources mitigation measures, which are formal commitments associated with Project approval. The Applicant is also bound to all provisions within the fully executed PA, which encompasses more specific measures to avoid or minimize effects to cultural resources. Collectively, these measures include training of construction workers, ongoing monitoring during construction, and appropriate pre-construction evaluation of specific sites. In the event resources are encountered, further mitigation requires a stop to construction to allow for resource evaluation, and measures to ensure appropriate recovery and curation.

## **5.8 HYDROLOGY AND WATER QUALITY**

Hydrology and water quality impacts could occur if the Project results in a violation of water quality standards or otherwise substantially degrades water quality, places structures within a 100-year floodplain or otherwise impedes or redirects flood flows, results in substantial new sources of stormwater discharge, or uses water resources in an inefficient manner.

The rail alignment and other facilities would cross the Mojave River, Bell Mountain Wash, and numerous other named and unnamed ephemeral washes, some of which meet criteria under the CWA to be considered “waters of the US” (also known as jurisdictional waters),

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<sup>13</sup> The Final EIS incorrectly identifies the Project (with Segment 4C) as impacting 36 resources as previously determined eligible; 99 resources are assumed to be eligible; and 119 were either previously found ineligible or are otherwise assumed ineligible.

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potentially affecting water quality. The Project would have direct permanent effects on approximately 20,100 linear feet of hydrological resources assuming Segment 4A is constructed; the number increases to approximately 20,851 linear feet if Segment 4C is constructed instead of Segment 4A. As its own component, Segment 4A would impact 734 linear feet of hydrological resources and Segment 4C would impact 1,485 linear feet of hydrological resources. Segment 4A would cross 29 streams, whereas Segment 4C would cross 48 streams. No wetlands are located in the vicinity of the rail alignment and other facilities, so there would be no effect to wetlands. Construction of the Project would permanently affect an estimated 5.96 acres of waters of the US.

Drainage patterns will not be significantly altered as a result of the Project. Within the I-15 freeway area, the rail alignment will at minimum match all existing culverts. Segment 4A would follow the existing I-15 freeway and would have the potential to connect with existing I-15 drainage facilities. Where the rail alignment diverts from the freeway, particularly in Segment 4C, mitigation developed in the CWA Section 404 permitting process and Section 7 consultation process (and included as a requirement within **Appendix A** of this ROD) requires the rail alignment to span all existing natural drainages 4 feet in width or greater, thus avoiding substantial interference with natural drainage functions. However, the Victorville Station and OMSF would impact portions of Bell Mountain Wash and related drainages, potentially altering existing drainage patterns.

Mitigation is included to address these potential water quality effects, including adherence to best management practices during construction, the development of site-specific water quality treatment devices, and compliance with requirements under the National Pollutant Discharge Elimination System Construction General Permit. Further mitigation requires preparation of a spill prevention control, and countermeasure plan and proper design of drainage systems. Further, the Applicant will be required to comply with all conditions and mitigation requirements that result from the pending permit from the USACE under Section 404 of the Clean Water Act (33 USC 1251 et seq.).

Portions of the Project would cross or be located adjacent to 100-year floodplain areas associated with the Mojave River or certain washes. The Project would encroach upon 51.68 to 57.48 acres of 100-year floodplain, depending on which Las Vegas passenger station is constructed; the longer alignment to Central Station B involves approximately six additional acres of floodplain area. Mitigation is included to reduce encroachment into 100-year floodplain areas, by means of elevating facilities or relocating certain facilities within the identified footprint/area of potential effects. Mitigation also prohibits the storage of construction equipment or material within the floodplain.

At-grade portions of the rail alignment would not produce considerable amounts of stormwater runoff given the relatively permeable nature of track on ballast (crushed rock) construction. On elevated rail alignments, the Project would include drainage elements

along the trackway that would capture and direct runoff to existing designated drainage features. Passenger stations and maintenance facilities would create additional runoff. Many of the mitigation measures related to water quality effects would also address the quantity and quality of stormwater associated with the Project. Additional mitigation is included to minimize the impact of specific facilities on existing natural drainages.

**Appendix A** of this ROD details the hydrology and water quality mitigation measures, which are formal commitments associated with Project approval. In addition to the mitigation measures outlined in the Final EIS, the Project will also be required to comply with all conditions and mitigation requirements resulting from the SWA Section 404 permit and Section 401 Certification. While required mitigation would reduce both construction and operational effects to water resources, the Project would nonetheless result in permanent impacts to existing channels, streams, drainages, and ephemeral washes; the Project would also result in an increase in impervious area, increasing the amount of stormwater runoff.

## 5.9 GEOLOGY AND SOILS

An adverse impact could occur if the Project were located in an area of high risk for one or more geologic and soils concerns. These concerns include surface fault rupture, ground shaking, liquefaction, dam inundation, differential settlement, corrosive and/or expansive soils, or landslides. Construction-related impacts would include the potential for hard-rock excavation (including tunneling), shallow groundwater, and/or ground fissures.

Generally, the California portions of the Project would be located in a seismically active region near active faults. These active faults may result in tectonic activities (i.e., earthquakes) in the region. The Nevada portion of the Project also includes some active and potentially active faults but these faults are attributed to land subsidence rather than tectonic activity (i.e. earthquakes). With few exceptions, all components of the Project face at least some risk of several of the identified geologic and seismic hazards during both operations and construction. Mitigation to address potential geologic and soil related impacts includes conducting pre-construction surface reconnaissance and subsurface assessment for surface fault ruptures and landslides and a site-specific evaluation for ground shaking hazards. Additional construction period mitigation would address concerns associated with hard rock excavation, introduce protections to ensure safe tunneling, and measures to address shallow groundwater or fissures, if encountered.

All potential geologic and seismic hazards can be controlled successfully through the application of standard engineering methods and practices identified in the mitigation measures above. **Appendix A** of this ROD details the geology and soil mitigation measures, which are formal commitments associated with Project approval. Following

implementation of these mitigation measures, the Project would not result in any residual impacts to geology and soils.

## 5.10 HAZARDOUS MATERIALS

An adverse hazardous materials impact could occur if the Project were near a property identified as having potential contamination (also known as a property of environmental concern) and thus may require disturbance of contaminated soils or groundwater. Impacts could also occur if the Project required the demolition of structures potentially containing hazardous materials (such as lead paint or asbestos) or entailed the use, storage, or transport of hazardous materials.

Construction activities associated with the facilities and rail alignments may encounter contaminated soils and/or groundwater or other previously identified hazardous materials that must be removed, disposed of, and/or remediated. Investigations, including environmental database and aerial photography reviews and field reconnaissance, identified several sites where the presence of such contaminated materials is known or suspected. Any ground disturbance activity comes with the risk of encountering unanticipated areas of contamination. To protect against such risks, mitigation sets forth appropriate protocols consistent with accepted professional standards to ensure the safe excavation, treatment, and/or encapsulation/disposal of contaminated materials. Construction of the Project may also entail the demolition of structures suspected to contain asbestos and/or lead paint. Mitigation is included to ensure that demolition avoids or minimizes the release of any such hazardous material.

To ensure the safe use and transport of hazardous materials needed for operations (such as solvents, paints, compressed gases, and waste products), mitigation requires the preparation of a Hazardous Materials Management Plan and the securing of any required Federal, state, or local permits for the installation and operation of any chemical or fuel storage tanks.

All potential effects related to hazardous materials can be controlled successfully through the application of standard safety planning methods and practices identified in the mitigation measures. **Appendix A** of this ROD details the hazardous materials mitigation measures, which are formal commitments associated with Project approval. No residual effects from hazardous materials would remain.

## 5.11 AIR QUALITY AND GLOBAL CLIMATE CHANGE

Adverse air quality impacts could result if operation of the Project exceeded a state or federal air quality standard or resulted in a localized concentration of emissions (a carbon monoxide (CO) “hotspot.”) Adverse construction period effects would occur if the Project

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resulted in the release of air pollutants in excess of de minimis thresholds under the General Conformity Rule (40 CFR Part 93).

Operation of the high-speed passenger rail system is expected to reduce the number of automobiles traveling on I-15 between Victorville and Las Vegas. This expected reduction in vehicle trips would reduce the emissions of several air pollutants and greenhouse gases relative to existing conditions and a resulting beneficial effect to regional air quality as a result, no Federal or State air quality standard would be exceeded.

At the local level, automobile and bus activity at the Project stations would have the potential to result in concentrations of air pollutants associated with vehicle exhaust. Within the urban settings where such facilities would be located, the increase in vehicles associated with new Project-related traffic at already congested intersections could result in concentrations of carbon monoxide (CO hotspot).<sup>14</sup> Analysis in the Final EIS documented that the increase in Project-related traffic would slightly increase the concentration of CO at certain intersections near the Victorville and Las Vegas facilities, but the resultant level of CO concentration would remain below the threshold of significance set forth in the National Ambient Air Quality Standards (NAAQS).

Construction of the Project would temporarily generate emissions of fugitive dust (particulate matter -PM<sub>10</sub> and PM<sub>2.5</sub>), construction equipment tailpipe emissions (reactive organic compounds, nitrous oxide, and carbon monoxide), and volatile organic compounds associated with paving and painting. Modeling of all construction-related activities, including the transport of materials to and from construction sites was conducted for the Final EIS, with results calculated for both of the air basins spanned by the Project area (the Mojave Desert Air Basin and the Clark County Air Basin). Prior to mitigation, these results exceeded de minimis standards for CO under the General Conformity Rule. After identifying appropriate mitigation which will be implemented during Project construction, all construction-related emissions fell below the de minimis standards. These mitigation requirements include the use of off-road equipment meeting the most newest and most stringent air quality standards, the use of low-VOC paints, and the use of composite fuels.

All potential effects to air quality resulting from construction-related activities can be controlled successfully through the application the mitigation measures mentioned above. **Appendix A** of this ROD details the air quality mitigation measures, which are formal

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<sup>14</sup> The Project is not subject to the Transportation Conformity Rule (codified at 42 U.S.C. 7506(c), Section 176(c)) as it is not a highway or transit project of the FHWA or the Federal Transit Administration. Transportation Conformity Rule requirements apply exclusively to the project sponsored by those agencies. Among the requirements under the Transportation Conformity Rule are analysis of concentrations of particulate matter (PM); there are no similar requirements for projects subject to the General Conformity Rule (58 FR 63214).

commitments associated with Project approval. Overall, the Project would result in a beneficial operational effect with regard to regional emissions, no substantial localized concentration of carbon monoxide, and construction period emissions below the de minimis standards of the General Conformity Rule. No residual air quality effects would remain.

## **5.12 NOISE AND VIBRATION**

Adverse impacts to noise and vibration could occur if the Project resulted in a substantial operation or construction period noise or vibration effect on identified sensitive receivers.

Operation of the Project would result in increased noise levels associated with passing trains on the rail alignment and increased activity and traffic near the station and maintenance facilities. Under FRA's established criteria, noise and vibration effects require the nearby presence of a sensitive receptor.

Noise associated with passing trains would increase noise levels for sensitive receptors, such as residential, commercial, and hotel uses, in the Barstow, Yermo, and the metropolitan Las Vegas areas, potentially resulting in adverse effects under FRA's noise criteria. As the Project rail alignment would be located primarily within the existing I-15 freeway corridor, the high-speed train passbys would incrementally add additional noise along the I-15 corridor expanding the areas affected by transportation noise. The amount the Project would expand the areas affected by transportation noise varies depending on location. In Barstow, the Project would extend the 65 dBA contour an additional 200-250 feet from the centerline of the I-15 in both directions. In metropolitan Las Vegas, where existing noise levels are generally much higher than in Barstow, the existing 65 dBA contour would be extended an additional 20 feet in both directions from the centerline of the I-15 freeway. This expansion of the existing noise contour may impact nearby sensitive receptors, such as residential uses, particularly in Barstow. Noise impacts were then re-analyzed with the incorporation of mitigation in the form of specialized noise reducing equipment and appropriate physical noise barriers along the rail alignment. The effectiveness of these types of mitigation has been verified through previous uses on surface transportation project (freeways and railroads) around the country. The noise modeling conducted for the Project showed that all construction and operation period adverse noise effects (all "impacts" and "severe impacts" as defined by FRA's criteria) will be fully mitigated. For those areas where noise barriers or specialized equipment would not be feasible to implement, alternative mitigation methods will be implemented, including the installation of appropriate sound insulation within buildings along the rail alignment and/or the acquisition of properties if ultimately necessary.

Analysis indicated that rail operations would not result in any vibration impacts. Where the rail alignment travels through urbanized areas like Barstow and metropolitan Las

Vegas, tracks are located on elevated structures, which minimize the potential for train-related vibration as experienced by people in nearby buildings.

Project construction could result in localized noise and vibration effects, including effects associated with pile driving, motorized construction equipment, or construction activities occurring during noise-sensitive time periods (i.e. nighttime in residential areas). Mitigation is included that requires construction to conform to the few applicable local noise regulations, perform ongoing monitoring, and limit the timing and location of certain activities to avoid the disturbance of sensitive receptors.

Implementation of the noise and vibration mitigation measures would fully mitigate noise and vibrations impacts, including severe noise impacts, associated with operation of the Project. **Appendix A** of this ROD details the noise mitigation measures, which are formal commitments associated with Project approval. No residual noise or vibration effects would remain.

### 5.13 ENERGY

An adverse impact relative to energy would occur if the Project resulted in a significant change in energy consumption either through construction and/or operations.

Implementation of the Project would lower operation energy consumption relative to projected future conditions under the No Action Alternative without the addition of rail service. This change is associated with an expected shift from automobile usage to train usage. By reducing automobile traffic on the I-15 corridor and allowing for inter-regional mobility via electric-powered trains, the Project would result in a net decrease in energy consumption, equivalent to about 440,000 barrels of oil each year. This is a beneficial effect.

Construction of the Project would require the temporary commitment of energy resources. The Final EIS analyzed whether this commitment could be recovered through the energy savings associated with ongoing operations. The analysis indicated that the energy savings after about two years of train operations would account for all of the energy spent on construction. This is also a beneficial effect.

Overall, implementation of the Project would result in a beneficial overall reduction in total energy consumption (electric power demand and petroleum-based consumption). The Project would continue to result in a reduction in automobile energy use that would be greater than the new energy required by the railway.

### 5.14 BIOLOGICAL RESOURCES

Construction of the Project has the potential to result in effects to various biological resources, including sensitive animal and plant species (and habitats associated with such

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species), native vegetation, special management lands, or wetlands or waters of the United States. Operation of the Project has the additional potential to result in a new barrier to wildlife movement.

Project biologists initiated their investigation with a review of available literature sources and databases documenting the presence of biological resources in the potentially affected area. The scope of the biological resources analysis for the Project was developed in close consultation with several resource management agencies with responsibilities and/or special knowledge of the area, including the BLM, the US Fish and Wildlife Service (USFWS), the California Department of Fish and Game, the Nevada Department of Wildlife, and others. This scoping helped identify areas of potential effect for different species and habitats and thus served to focus subsequent fieldwork and analysis for each resource type considered.

Following identification of the Preferred Alternative, FRA formally initiated consultation under Section 7 of the Endangered Species Act with the USFWS through the submittal of a BA for the Project, focused on federally listed species, which in this area concerns the desert tortoise, whose status is identified as threatened under the Endangered Species Act. In April 2011, the USFWS issued its BO for the Project, included as **Appendix D** of this ROD, which included several additional protective measures that have been incorporated as mitigation commitments in this ROD. With regard to other agency review and comment, the Nevada Department of Wildlife (NDOW) issued a comment on the Final EIS noting its support of the Project (See Final EIS Comment F-41 within **Appendix C** of this ROD).

The Final EIS set forth mitigation intended to avoid or minimize impacts to biological resources generally. These required measures include a mandatory training program for all construction workers, appropriate pre-construction surveys particular to certain species and habitat areas, the use of appropriate construction fencing around sensitive resources to avoid damage, construction period monitoring and controls, the confining of construction equipment to designated work zones, adherence to best practices to avoid the unintentional dispersal of invasive weeds and excessive erosion, requirements to restore topsoil and natural site topography upon completion of construction, requirements to obtain tree/plant removal permits where necessary from appropriate agencies, and to compensate for the loss of sensitive vegetation communities, special-status plant populations (if unavoidable), and species habitat. These measures would mitigate potential effects to several identified sensitive species, including banded gila monsters, Mojave fringe-toed lizards, big horned sheep, American badger, plus several protected bat and bird species. Please see below for potential effects related to the desert tortoise.

The Project would have effects on several specific types of biological resources. Among these are sensitive vegetation communities and special-status plant populations. To avoid



or minimize such effects, required mitigation includes the requirement for preconstruction surveys to pinpoint sensitive areas, incorporation of avoidance measures into final design-build plans to avoid special status plan populations, and, in the event avoidance cannot be achieved, compensation for any loss of sensitive vegetation communities at a ratio to be determined by a governing resource agency.

The Final EIS and the BO focused extensively on potential effects to the desert tortoise, a species considered “threatened” under the Endangered Species Act. Construction and operation of the Project have the potential to harm or kill individual tortoises and to have permanent or temporary impacts to tortoise habitat. The effects to desert tortoise habitat differ substantially for the two Segment 4 alignments included in the Selected Alternative. Segment 4C would impact desert tortoise relocation areas for the ISEGS project, further degrading the tortoise habitat in this area. Segment 4A would impact the Ivanpah DWMA and Mojave National Preserve. In total, Segment 4A, if constructed, would permanently impact 42.2 acres and temporarily impact 371.7 acres of desert tortoise habitat. In comparison, Segment 4C would permanently impact 167.7 acres and temporarily impact 722.23 acres of desert tortoise habitat. Substantial mitigation requirements are incorporated in this ROD to address potential impacts to this species. Preemptive requirements include the preparation of a tortoise relocation plan to avoid harm to tortoises from construction activities, the installation of exclusion fencing to ensure tortoises do not enter active construction areas, and the integration of appropriate culverts into final design-build plans to allow continued passage of tortoises following construction. Additional mitigation requirements are included to address the potentiality of direct harm to tortoises, including requirements for monitoring construction areas and protocols for the treatment/disposition of injured or killed tortoises. Other mitigation requirements include compensation for the disturbance of tortoise habitat by providing for suitable habitat elsewhere,<sup>15</sup> measures to limit the roosting of common ravens (a predator of tortoise eggs and juvenile tortoises), and measures to monitor and report on the effectiveness of mitigation measures.

**Appendix A** of this ROD details the biological resources mitigation measures, which are formal commitments associated with Project approval. Collectively, these measures would mitigate many impacts to biological resources, but residual effects would remain. Even with adherence to these mitigation requirements, the Project would result in the permanent loss of native vegetation communities, sensitive plant communities, special status plant populations, BLM special management lands, and sensitive habitat areas for

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<sup>15</sup> Current requirements for the loss of desert tortoise habitat are based on a formula of 5:1 inside DWMA and 1:1 outside DWMA. For the purposes of the Project change to the compensation formula must be reviewed by the USFWS, NPA, and CDFG.

several species (desert tortoise, banded gila monster, reptile species protected under the Clark County MSHCP, burrowing owl, American badger, and bighorn sheep).

### **5.15 SECTION 4(F) EVALUATION**

The Final EIS included an evaluation required by Section 4(f) of the Department of Transportation Act of 1966 (23 USC 138 and 49 USC 303(c)). Adverse impacts to Section 4(f) resources could occur if the Project results in a direct or constructive use of an identified Section 4(f) resource. Section 4(f) resources include parks and recreational lands, Clean Air Act Class I Areas, wildlife and waterfowl refuges, and historic architectural or archeological sites. A direct use occurs when a property protected by Section 4(f) is permanently incorporated into a transportation facility or is temporarily occupied. A constructive use can occur when there is no direct use, but the proximity impacts (factoring in mitigation measures) of the project on the property or resource protected by Section 4(f) are so severe that the activities, features, or attributes that qualify the property or resource for protection are substantially impaired.

Two types of Section 4(f) resource classes were screened out, due to lack of existence within proximity to the project. There are no wildlife or waterfowl refuges within twenty miles of the Project; accordingly, FRA concluded that no uses of any such resource would occur. Additionally, there are no historic architectural resources within the APE of the Project. Accordingly, the Project would not result in any uses of any such resource.

There are approximately 19 parks and recreational lands, including the Mojave National Preserve, within one mile of Project facilities and rail alignments. None of these parks would be directly used, as Project facilities would be located outside the boundaries of such lands. Therefore, the evaluation focused on the potential for constructive use. FRA's investigation examined the potential for the Project to result in noise, vibration, visual, access, or ecological intrusion impacts on park lands, ultimately concluding that none of these impacts would occur, primarily owing to substantial distance between Project facilities and existing park and recreation lands.

With respect to Segment 4, at present construction of Segment 4A is not possible absent legislative authority because it requires an approximately 1.55 mile encroachment in the Mojave National Preserve which is a 4(f) resource. FRA believes, any legislative authority is likely to include a land swap that would remove such property from the Preserve boundaries which would avoid a direct 4f use. Ideally, such a land swap would include enough property to allow the Project to be designed to avoid any potential proximity effects to the Park.

The closest Class I area to any portion of the Project is the Cucamonga Wilderness, more than 30 miles south of Victorville. The distance of the Project to these resources would not substantially impair any protected activities, features or attributes which qualify them

for protection under Section 4(f). Nor would the Project result in severe proximity impacts to aesthetics, noise, vibration, access, or ecological resources at these properties. There would be no direct or constructive uses of these resources.

FRA thoroughly examined the potential for the Section 4(f) use of archaeological resources. In order for a cultural resource to be protected under Section 4(f), it must be eligible for the National Register under specific criteria. Archaeological resource sites whose importance as a resource can be fully documented through a data recovery process alone are not protected under Section 4(f). Although the preparation of site records as well as formal eligibility determinations were phased per the terms of the Programmatic Agreement (PA) for the Project, FRA nonetheless consulted with the BLM and interested Tribes and ultimately opted to prepare more than 50 site records for resources with the potential for protection under Section 4(f). Following a rigorous and collaborative preliminary evaluation process, FRA concluded that one archaeological resource site met the criteria for protection under Section 4(f). After modifications to Segment 3B, as detailed in Segment 3B (Modified), this resource would not be impacted by the Project or cause a Section 4(f) use.

## **6.0 Summary of Comments on the Final EIS**

During the 30 day waiting period following publication of the Final EIS, FRA received substantive comments. FRA received comments from 17 commenters regarding the following topics: purpose and need, alternatives, air quality, biological resources, cultural resources, cumulative impacts, environmental justice, growth, hazardous materials, hydrology, land use, noise, Section 4(f), traffic and transportation, utilities, and visual resources. The range and types of comments received are summarized below.

All substantive comments have been addressed in detail in Appendix C of this ROD. In many cases, FRA's response identifies where in the EIS Documents (DEIS, SDEIS, FEIS) the particular issue raised in the comment had been previously addressed. Other responses provide minor clarification about Project details or design issues, or mitigation measures. Certain comments warranted further review or consultation and in some cases, revision/expansion of mitigation measures. The range and types of comments received on the Final EIS are summarized below.

Regarding the Project Purpose and Need and Alternatives considered, commenters raised questions regarding the viability of the Project with a terminus in Victorville, asked whether other technology or routing alternatives should have been considered, and inquired about the implications of a possible federal loan for construction.

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Commenters asked about potential air quality impacts during Project operations, particularly in areas near stations, where air quality could be affected by roadway traffic accessing the station.

Comments regarding biological resources asked for clarification on the scope of the biological resources assessment and potential effects to certain species.

Comments regarding cultural resources included clarification regarding the proposed phased approach to archaeological resource evaluation through a Programmatic Agreement, and raised questions regarding the extent of consultation with Native American Tribes. In response to these comments and concerns, the number of mitigation measures was expanded from what was included in the Final EIS to more completely encompass binding provisions of the Programmatic Agreement.

Commenters questioned the adequacy of the cumulative impact analysis, noting that impacts to certain biological resources (desert tortoise, desert bighorn sheep) should also be considered as cultural resource impacts given the significance of these species to particular Native American Tribes.

A commenter inquired whether additional attention was warranted regarding potential mobile source air quality impacts near the Las Vegas Central Station B.

Comments regarding growth issues centered on the anticipated intensity of adverse economic impacts on the City of Barstow and the potential for Project stations to induce growth in the Victorville area. In response to the comments regarding impacts to the City of Barstow, FRA commissioned a supplemental economic impact study to more specifically examine the comments of the City of Barstow in a separate economic impact study it submitted with its Final EIS comments. This supplemental study (the "Husing Review") is included as Appendix C to this ROD. The supplemental study addressed the issues raised by the City of Barstow in its Final EIS comments and further explained the reasoning behind FRA's previous conclusions regarding the extent of adverse economic impacts to the City of Barstow.

Comments regarding hazardous materials issues requested clarification on the scope of the evaluations conducted as part of the analysis for the Draft EIS and Supplemental Draft EIS.

Comments regarding hydrology included clarification on the extent of mitigation measures that would be included in the ROD, particularly with regard to Segment 4C and the Victorville Station.

Comments regarding land use issues indicated concern regarding compatibility with aviation facilities and existing residential land uses in the southwestern metropolitan Las Vegas area; and clarification on previously identified impacts in the City of Barstow. In

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post-Final EIS consultation with the Federal Aviation Administration, FRA revised and expanded land use mitigation measures to avoid and minimize impacts to McCarran International Airport in Las Vegas and the proposed Southern Nevada Supplemental Airport near Primm.

Comments regarding noise issues sought clarification on the efficacy of noise mitigation measures proposed for the Project, particularly near residential areas in metropolitan Las Vegas.

Commenters questioned the methodology of the Section 4(f) evaluation, suggesting that certain cultural resources were improperly excluded from consideration as properties protected under Section 4(f).

Comments regarding traffic included questions of the effectiveness of mitigation identified in the Final EIS and questions related to safety of people and vehicles in and near the I-15 corridor, particularly with regard to existing windy conditions in many places along the Project corridor.

Comments regarding utilities questioned the scope of the STB's preemption authority in terms of possible utility system modifications needed to ultimately serve the Project and the efficacy of mitigation identified to address impacts to fire and emergency service providers.

Comments regarding visual effects included the potential for light pollution in the metropolitan Las Vegas area and possible obstruction of advertising signage along the I-15 corridor.

Please see Appendix C of this ROD for FRA's responses to these comments. In issuing this ROD, FRA has considered all comments received on the Final EIS, as well as the previous comments received on the Draft and Supplemental Draft EIS.

## 7.0 Corrections to the Final EIS

The following lists minor corrections to the Final EIS. In all of the cases below, typographical or editing errors resulted in the misstatement of certain environmental effects. None of these errors materially affected the decision-making of FRA or the Cooperating Agencies.

Final EIS p. 3.3-6, Table F-3.3-2 – Farmlands. Table overstated the amount of indirectly affected farmland for Segment 3A: the correct amount is 0.0 acres (no effect). The table incorrectly stated that 0.31 acres of farmland would be affected by Segment 3A.

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Final EIS p. 3.7-16 and 3.15-24, regarding archaeological resource CA SBR (00)885: Table F-3.7-1 on p. 3.7-16 erroneously indicates that this resource is in the APE; Table F-3.15-2 on p. 3.15-24 correctly states that this resource is outside the APE.

Final EIS p. 3.7-10, Section 3.7.2.3: The text overstates the total number of cultural resources potentially affected by the Project.

1. “Preferred Alternative”: The count of cultural resources affected by the Preferred Alternative assumed the construction of Segment 4C. The accurate numbers of cultural resources associated with this alternative are noted below:

- 92 resources assumed eligible
- 38 resources previously identified as eligible
- 109 resources previously identified as not eligible

Total: 239 resources (not 254 as noted on Final EIS p. 3.7-10)

2. Segment 4A: The Selected Alternative identified in the ROD includes Segment 4A and notes Segment 4C as a contingent alternative if legislative action to permit the implementation of Segment 4A is not adopted. For clarification purposes, the number of cultural resources associated with the Selected Alternative incorporating Segment 4A instead of Segment 4C is as follows:

- 90 resources assumed eligible
- 37 resources previously identified as eligible
- 98 resources previously identified as not eligible

Total: 225 resources

The Final EIS p. 3.9-7, Table F-3.9-2 – Geology and Soils included two misstatements of comparative geologic impacts:

1. Surface Fault rupture risk: The table overstated the likelihood of surface fault rupture for Segments 4A and 4B. These should have been noted as having “low” risk of surface fault rupture.
2. Ground shaking risk: The risk for Segment 6B have been the same as noted for Segments 6A and 6C: low to moderate.

Final EIS p. 3.14-39, Table F-3.14-1, Table 1 of 3. The table overstated the amount of desert tortoise impacts related to Segment 6A: the correct amounts are 0.0 for both permanent and temporary effects. The table incorrectly stated 40.2 acres of permanent impact and 116.6 acres of temporary impact.

Final EIS p. 3.14-42, Table F-3.14-1, Table 2 of 3. The table overstated the acreage of Mohave ground squirrel (MGS) temporarily affected by Segments 3A and 3B. The correct

amounts for both Segment 3A and 3B is zero. This same error was made in the Draft EIS within Table 3.14-13 on Draft EIS page 3.14-60.

## 8.0 Decision

### 8.1 BASIS FOR DECISION

DesertXpress Enterprises proposes to implement high-speed passenger rail service between Victorville, California and metropolitan Clark County (Las Vegas), Nevada. The purpose of the DesertXpress Project is to offer a safe, reliable alternative to automobile and air travel between southern California and Las Vegas using proven rail technology. Currently, the overwhelming majority of travelers between southern California and Las Vegas travel in automobiles on Interstate 15, contributing to substantial safety and congestion concerns on that roadway and in adjacent communities. Projected travel demand on I-15 is expected to continue to increase commensurate with projected population growth in southern California. Implementation of the DesertXpress Project will help address these needs.

In addition, the Passenger Rail Investment and Improvement Act of 2008 established high-speed rail corridor development as an important component of the Nation's transportation policy. Moreover, on July 2, 2009, U.S. Transportation Secretary Ray LaHood announced that the Department of Transportation had officially extended the designation of the California High-Speed Rail Corridor to Las Vegas, Nevada.

Implementation of the DesertXpress Project is thus consistent with the Department of Transportation and FRA's vision of the important role high-speed intercity passenger rail can play in certain travel markets (see *Vision for High-Speed Rail in America*, April 2009 <http://www.fra.dot.gov/downloads/rrdev/hsrstrategicplan.pdf>).

The Selected Alternative identified in this ROD as the Project is composed of rail alignments, facilities, and a locomotive technology. Section 4.3 of this ROD articulates in detail the considerations and factors balanced by FRA in arriving at this decision. These considerations extended to the evaluation of numerous Action Alternatives and a No Action Alternative. The components of the Project are as follows:

- **Alignments**
  - Segment 1
  - Segment 2C Side Running
  - Segment 3B (Modified)
  - Segment 4A, if legislative action allows; otherwise Segment 4C
  - Segment 5B

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- Segment 6B
- **Facilities**
  - **Victorville Station:** VV3B
  - **Las Vegas Station:** Las Vegas Central Station B or Las Vegas Southern Station
  - **Victorville OMSF:** OMSF 2
  - **Las Vegas MSF:** Wigwam Avenue MSF
  - **Las Vegas Substation:** Frias Substation
- **Technology**
  - **EMU:** Electric Multiple Unit

The Project also incorporates a total of 16 Temporary Construction Areas (TCAs) necessary to construct the selected alignments and facilities.

FRA, in accordance with the Council on Environmental Quality NEPA implementing regulations (40 CFR Parts 1500-1508) and FRA's Procedures for Considering Environmental Impacts (64 FR 28545, May 26, 1999), finds that the requirements of NEPA have been satisfied for the DesertXpress Project.

The environmental record for DesertXpress Project includes the Draft EIS (March 2009), the Supplemental Draft EIS (August 2010), the Final EIS (March 2011), and this ROD, which includes comments from the circulation of the Final EIS. These documents represent the detailed analysis and findings required by NEPA on:

- The environmental impacts of the proposed Project
- Alternatives to the proposed Project
- Irreversible and irretrievable impacts on the environment which may be involved in the proposed Project should it be implemented.

On the basis of the evaluation of social, economic, and environmental impacts contained in the Draft EIS, Supplemental Draft EIS, and Final EIS, as well as the written and oral comments offered by the public and by other agencies, FRA determines that:

- Adequate opportunity was afforded for the presentation of views by all parties with a significant economic, social, or environmental interest, and fair consideration was given to the preservation and enhancement of the environment and to the interest of the communities in which the proposed Project is located and
- All reasonable steps were taken to minimize adverse environmental effects of the proposed Project, and where adverse environmental effects remain, they have been fully reported in Draft EIS, Supplemental Draft EIS, and Final EIS.



The extensive opportunities provided for public and other stakeholder involvement in planning and decision-making are described in Chapter 4 of the Final EIS. The reasonable steps to minimize adverse environmental effects are described in Chapter 3 of the Final EIS and are detailed as Project commitments in **Appendix A** of this ROD.

## **8.2 SECTION 106**

Section 106 of the NHPA of 1966 requires that any federal agency having direct or indirect jurisdiction over a proposed federal or federally assisted undertaking take into account the effect of the undertaking on any district, site, building, structure, or other object that is listed or eligible for listing on the National Register of Historic Places. Under this provision, in an effort to avoid or minimize adverse effects to cultural resources, a Programmatic Agreement (PA) was developed and executed by FRA, all federal Cooperating Agencies (BLM, NPS, STB, FHWA), the Nevada and California State Historic Preservation Officers (SHPOs), and the Applicant (see Final EIS Appendix F-H). In addition, one Native American Tribe, the Las Vegas Paiute, signed as a concurring party. Following publication of Records of Decision or other decision documents by the federal Cooperating Agencies for the Project, the terms of the PA will be implemented. The PA sets forth numerous requirements intended to ensure appropriate treatment of historic resources is employed during the ground-disturbing activities associated with Project construction.

The PA also stipulates protocols for how and when formal eligibility determinations would be made. Specifically, while extensive efforts have occurred to identify potential historic resources, the PA describes a phased implementation approach consistent with 36 C.F.R. 800.4(b)(2) permitting formal eligibility determinations to be made after the Preferred Alternative is identified and ratified by the Lead and Cooperating Agencies via decisions on the proposed action. Eligibility determinations will be made by the appropriate agency (in this region, either BLM or FRA) based on information presented in completed state-appropriate site records forms. Moreover, the PA sets forth requirements for Tribal monitoring of construction activities to help ensure protection of cultural resources that may be encountered.

Adherence to the terms of the PA will fulfill all obligations under Section 106 of the National Historic Preservation Act (16 USC 470f).

As articulated in Chapter 4 of the Final EIS, FRA conducted extensive consultation with Native American Tribes and tribal organizations with known or assumed ancestral presence in the area of the proposed action. Several formal government-to-government consultations occurred over the course of the environmental review as well as numerous informational sessions. FRA invited these 13 organizations to comment on draft versions of the PA and subsequently invited them to sign the PA as concurring parties.

Notably, the PA stipulates that a signature as a concurring party is not a condition of future participation in the implementation of the PA.

Based upon these findings and implementation of the PA, FRA determines that the Project is in accordance with requirements of Section 106.

### **8.3 SECTION 4(F)**

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 23 U.S.C 138 and 49 U.S.C. 303, declares that “it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation land, wildlife and waterfowl refuges, and historic sites.” Section 4(f) states that the Secretary of Transportation “may approve a transportation program or project . . . requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of an historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if:

1. there is no prudent and feasible avoidance alternative to the use of the land from the Section 4(f) property; and
2. the program or project includes all possible planning to minimize harm to the Section 4(f) property resulting from the use.

In the Final EIS, FRA prepared a Final evaluation under Section 4(f) in compliance with all requirements of the law as well as FRA’s Procedures for Considering Environmental Impacts.

FRA selected a Project alternative that avoids any use of Section 4(f) properties. Based upon this evaluation, FRA concludes that the Project is consistent with the requirements of with Section 4(f).

### **8.4 SECTION 6(F)**

Section 6(f) of the Land and Water Conservation Fund Act (LWCFA) concerns transportation projects that propose impacts, or the permanent conversion, of outdoor recreation property that was acquired or developed with LWCFA grant assistance.

Passed in Congress in 1965, the LWCFA provides grants which pay half the acquisition and development cost of outdoor recreation sites and facilities. Section 6(f) of the act states that property acquired through this grant money cannot be taken out of recreational use without approval of the Department of Interior’s National Park Service (NPS). Section

6(f) also holds the NPS “to assure that replacement lands of equal value, location and usefulness are provided as conditions of approval of land conversions.”

The Project would not result in the conversion of any property acquired with funds from the LWCFA. The closest qualifying property to the Selected Alternative is the Camp Cady Wildlife Area in San Bernardino County, California. Funds from the LWCFA were authorized to acquire land for this resource area (a wildlife refuge) in 1979 and 1984. This site is approximately 3 miles from the rail alignment; on the basis of this distance, FRA also concluded that the site would not be subject to any use under Section 4(f) of the Department of Transportation Act of 1966.

Therefore, FRA concludes that the Project would not result in any impact or conversion of property acquired or developed with LWCFA grant assistance. Based upon these findings, FRA determines that the Project is in accordance with requirements of Section 6(f).

## **8.5 SECTION 7 ENDANGERD SPECIES FINDING**

FRA requested formal consultation with the USFWS under Section 7 of the Endangered Species Act. A BA was prepared for the proposed action addressing potential impacts to the federally-listed threatened species affected by the Project, the desert tortoise (*gopherus agassizii*). In response, the USFWS issued a BO on April 26, 2011 stating that the proposed action would not jeopardize the continued existence of the desert tortoise, nor would the proposed action result in an adverse modification of critical habitat. Based upon these findings, FRA determines that the Project is in accordance with requirements of Section 7.

## **8.6 WETLANDS FINDING**

Presidential Executive Order 11990, “Protection of wetlands,” directs federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative.

Construction of the Project would not traverse, modify, or destroy any wetlands. Based upon these findings, FRA determines that the Project is in accordance with requirements of Executive Order 11990.

## **8.7 FLOODPLAINS AND FLOODWAYS FINDING**

DOT Order 5620.2 implements Executive Order 11988, Floodplain Management and Protection. These orders state that FRA may not approve an alternative involving a significant encroachment unless FRA can make a finding that the proposed encroachment is the only practicable alternative. The major purposes of Executive Order 11988 are to

avoid Federal support for floodplain development; to prevent uneconomic, hazardous, or incompatible use of floodplains; to restore and preserve the natural and beneficial floodplain values; and to be consistent with the standards and criteria of the National Floodplain Insurance Program.

FRA concludes that the Project will not result in any substantial adverse impact on natural and beneficial values of the floodplains, will not result in a substantial change in flood risks or damage, and will not have a substantial potential for interruption or termination of emergency service and evacuation routes. Based upon these findings, FRA determines that the Project is consistent with requirements of Executive Order 11988.

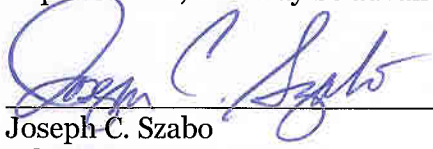
## **8.8 ENVIRONMENTAL JUSTICE FINDING**

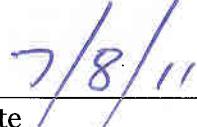
Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires that each Federal Agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. The Department of Transportation (DOT) Order to Address Environmental Justice in Minority Populations (DOT order 5610.2 (April 15, 1997)) imposes similar obligations on DOT operating administrations to promote the principles of Executive Order 12898 and incorporate such principles in all programs, policies, and activities including the NEPA process.

The majority of the Project would be within or adjacent to an existing transportation corridor and would not bisect minority or low-income neighborhoods nor require the displacement of residences in those neighborhoods. The anticipated human and environmental effects of the Project would not be disproportionately borne by the minority or low-income populations within the study area. Based upon these findings, FRA determines that the Project is consistent with requirements of Executive Order 12898.

## **9.0 Conclusion**

FRA has reached a decision based on the information contained in the Draft EIS, Supplemental Draft EIS, and Final EIS. FRA approves the Project identified as the Selected Alternative in this ROD. FRA has selected this alternative because the alternative 1) best satisfies the Purpose and Need for the proposed action; 2) minimizes impacts to the natural and human environment by utilizing an existing transportation corridor where practicable and incorporating other mitigation measures. Accordingly, this alternative has been selected based on processes in compliance with NEPA and other applicable requirements, and may be advanced.

  
\_\_\_\_\_  
Joseph C. Szabo  
Administrator  
Federal Railroad Administration

  
\_\_\_\_\_  
Date

### Attachments:

- Appendix A: Mitigation and Commitments
- Appendix B: Husing Review
- Appendix C: Final EIS Comments and Responses
- Appendix D: Biological Opinion

