Errata

for

SR 160 Corridor Improvement: SR 159 to Mountain Springs

Federal Aid Number: STP-0160(022)
NDOT Project Number: 73395
EA Document Number: FHWA-NV-EA-13.01

September 2014

This errata sheet will be appended to the June 16, 2014 approved Environmental Assessment. The items below are listed in the order they appear in the approved Environmental Assessment.

1. Page X, List of Mitigation Measures, Waters of the U.S., last sentence of the description should read as follows: “As noted in the December 2013 telephone memorandum in Appendix A, the USACE does not require mitigation for culvert extensions of the type proposed for this project because by maintaining existing drainage patterns, there is no impact to waters of the U.S.”

2. Page XI, List of Mitigation Measures, a row should be added to the table for “Cultural Resources” with the following mitigation measures:

   NRHP- Eligible Archaeological Properties
   No ITS poles or streetlights will be within the viewshed of the two archaeological sites eligible under Criterion C.
   Archaeological avoidance areas will be fenced off and no construction will be allowed within the avoidance areas. An archaeological monitor will be present during installation.
   If an inadvertent archaeological discovery occurs, no further construction in the area of the discovery will proceed until the requirements of 36 CFR 800.13 and Nevada Revised Statues 383 have been satisfied, including consultation with SHPO and with Native American Tribes that may attach traditional cultural and religious significance to the discovered property.
   Native American consultation will continue until the project is constructed.

   NRHP-Eligible Architectural Properties
   The project proposes streetlights be placed at certain intersections along SR 160. To minimize the impact, lighting will follow the recommendations of the International Dark-Sky Association. The lights will be LED fixtures with backlight-uplight-glare ratings that are equivalent to a full cut-off classification to help mitigate sky glow, light trespass and glare. The minimum number of lights will be used to achieve the required safety standards. If the Mountain Springs residents request it, NDOT will paint the streetlights green or brown to help the lights blend in with their surroundings.
   Road widening will require the removal of about 100 trees in the Mountain Springs area. When tree removal thins the visual screen provided by the overstory, the trees will be replaced with two smaller trees. Any trees that are replanted will be irrigated, if needed, to ensure that they thrive.
   No ITS poles will be installed within a half-mile radius of any historic architectural property. This will ensure that the ITS poles will not be visible from any NRHP property or property being treated as eligible.
3. Page 3-21, Section 3.7.3, last sentence of the paragraph should read as follows: “The USACE normally does not require mitigation for culvert extensions of the type proposed for this project because by maintaining existing drainage patterns, there is no impact to waters of the U.S. (see page A-44, Appendix A).

4. Page 3-35, Section 3.13.1, Table 3-7 (Prehistoric Architectural Properties within APE) is incorrectly titled. The table title should be “Prehistoric Archaeological Resources within the APE.”

5. Page 3-36, Section 3.13.2, bullet 2 should read as follows: “Archaeological avoidance areas will be fenced off and no construction activities will be allowed within the avoidance areas. An archaeological monitor will be present during installation.”

6. Page 3-36, Section 3.13.2 (Cultural Resource Impacts), the second paragraph under “Impacts to NRHP-Eligible Archaeological Properties” should read as follows: “As a result of NDOT’s outreach to project stakeholders, including Native American Tribes, about the project and the archaeological resources identified within the study corridor, a number of concerns were raised about potential impacts on archaeological sites even though no sites will be directly affected. In response to those concerns, NDOT will impose the conditions described under Section 3.13.3 to further minimize the potential for indirect archaeological impacts.”

The first paragraph under “Impacts to NRHP-Eligible Architectural Properties” should read as follows: “The Preferred Alternative would have no direct impacts to the NRHP eligible, or treated as eligible, buildings and historic district. To address the project’s potential indirect visual, atmospheric, or audible elements on the NRHP-eligible properties within the project’s APE, NDOT will impose the conditions described under Section 3.13.3.

7. Page 3-37, Section 3.13.3 (Mitigation Measures) should read as follows: “Although the Preferred Alternative would avoid direct impacts to archaeological and historic architectural resources, NDOT has developed the following commitments to address the potential for indirect effects:

**NRHP- Eligible Archaeological Properties**

- No ITS poles or streetlights will be within the viewshed of the two archaeological sites eligible under Criterion C (26CK241 and 26CK3373).
- Archaeological avoidance areas will be fenced off and no construction will be allowed within the avoidance areas. An archaeological monitor will be present during installation.
- If an inadvertent archaeological discovery occurs, no further construction in the area of the discovery will proceed until the requirements of 36 CFR 800.13 and Nevada Revised Statues 383 have been satisfied, including consultation with SHPO and with Native American Tribes that may attach traditional cultural and religious significance to the discovered property.
- Native American consultation will continue until the project is constructed.

**NRHP-Eligible Architectural Properties**

- The project proposes streetlights be placed at certain intersections along SR 160. To minimize the impact, lighting will follow the recommendations of the International Dark-Sky Association. The lights will be LED fixtures with backlight-uplight-glare ratings that are equivalent to a full cut-off classification to help mitigate sky glow, light trespass and glare. The minimum number of lights will be used to achieve the required safety standards. If the Mountain Springs residents request it, NDOT will paint the streetlights green or brown to help the lights blend in with their surroundings.
- Road widening will require the removal of about 100 trees in the Mountain Springs area. When tree removal thins the visual screen provided by the overstory, the trees will be replaced with two smaller trees. Any trees that are replanted will be irrigated, if needed, to ensure that they thrive.
• No ITS poles will be installed within a half-mile radius of any historic architectural property. This will ensure that the ITS poles will not be visible from any NRHP property or property being treated as eligible.
ENVIRONMENTAL ASSESSMENT
for SR 160 Corridor Improvement / SR 159 to Mountain Springs
FHWA-NV-EA 13.01
STP-0160(022)
EA: 73395
May 2014

Cooperating Agencies
Bureau of Land Management and the U.S. Forest Service (pursuant to 23 U.S.C. 139)

Approved by:                           Date: 6/16/14
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This Environmental Assessment has been prepared in accordance with the provisions and requirements of
Chapter 1, Title 23, 23 CFR Part 771, relating to implementation of the National Environmental Policy Act of 1969.
The Bureau of Land Management and U.S. Forest Service are cooperating agencies.

ABSTRACT

The Nevada Department of Transportation (NDOT), in cooperation with the Federal Highway Administration
(FHWA), has prepared this Environmental Assessment, which examines the potential socioeconomic and
environmental impacts of alternatives being considered for the proposed State Route 160 (SR 160) Improvement
Project located in Clark County, Nevada. The document describes why the project is being proposed, alternatives
considered (including the No-Build Alternative), existing environment that could be affected by the project,
potential impacts from the No-Build Alternative and Preferred Alternative, and proposed mitigation measures.

NDOT, with FHWA, is proposing to improve 11 miles of SR 160 from the SR 160/159 intersection to a point 1.24 miles
west of the Mountain Springs Summit. The project is being proposed because the crash rate in the corridor for all
crash types exceeds the statewide average. Improvements proposed for SR 160 consist of widening the roadway
from 2 travel lanes to 4, adding a 14-foot-wide painted median (raised median through Mountain Springs
community), constructing an 8-foot-wide shoulder/bike lane on both sides of the road, and improving roadway
geometrics to address safety concerns. NDOT is proposing to construct the SR 160 improvements in two phases.
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# Acronyms and Abbreviations

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<tr>
<td>AADT</td>
<td>annual average daily traffic</td>
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<tr>
<td>AASHTO</td>
<td>American Association of State Highway and Transportation Officials</td>
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<td>ACS</td>
<td>American Community Survey</td>
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<tr>
<td>BLM</td>
<td>Bureau of Land Management</td>
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<tr>
<td>CAC</td>
<td>Citizens Advisory Council</td>
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<tr>
<td>CCDAQEM</td>
<td>Clark County Department of Air Quality and Environmental Management</td>
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<tr>
<td>CCRFCD</td>
<td>Clark County Regional Flood Control District</td>
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<td>CEQ</td>
<td>Council on Environmental Quality</td>
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<td>CFR</td>
<td>Code of Federal Regulations</td>
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<tr>
<td>CLOMR</td>
<td>Conditional Letter of Map Revision</td>
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<tr>
<td>CNPS</td>
<td>California Native Plant Society</td>
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<td>CO</td>
<td>carbon monoxide</td>
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<tr>
<td>EA</td>
<td>Environmental Assessment</td>
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<tr>
<td>ESA</td>
<td>Endangered Species Act</td>
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<td>FEMA</td>
<td>Federal Emergency Management Agency</td>
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<td>FHWA</td>
<td>Federal Highway Administration</td>
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<tr>
<td>GHG</td>
<td>greenhouse gas</td>
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<tr>
<td>HA</td>
<td>Hydrographic Area</td>
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<td>HMA</td>
<td>Herd Management Area</td>
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<tr>
<td>HOV</td>
<td>high-occupancy vehicle</td>
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<tr>
<td>ITS</td>
<td>Intelligent Transportation System</td>
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<tr>
<td>LOS</td>
<td>Level of Service</td>
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<tr>
<td>MAP-21</td>
<td>Moving Ahead for Progress in the 21st Century</td>
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<tr>
<td>MP</td>
<td>mile post(s)</td>
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<td>mph</td>
<td>miles per hour</td>
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<td>MSAT</td>
<td>mobile source air toxics</td>
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<td>NAAQS</td>
<td>National Ambient Air Quality Standards</td>
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<td>NCA</td>
<td>National Conservation Area</td>
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<td>NDOT</td>
<td>Nevada Department of Transportation</td>
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<td>NDOW</td>
<td>Nevada Department of Wildlife</td>
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<td>NEPA</td>
<td>National Environmental Policy Act</td>
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<td>NHPA</td>
<td>National Historic Preservation Act</td>
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<td>NNHP</td>
<td>Nevada Natural Heritage Program</td>
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<td>NNPS</td>
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<td>NRA</td>
<td>National Recreation Area</td>
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<td>NRCS</td>
<td>Natural Resources Conservation Service</td>
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<td>NRS</td>
<td>Nevada Revised Statute</td>
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<tr>
<td>OMB</td>
<td>Office of Management and Budget</td>
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<tr>
<td>PBO</td>
<td>Programmatic Biological Opinion</td>
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<tr>
<td>PIM</td>
<td>public information meeting</td>
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<tr>
<td>PM$_{10}$</td>
<td>particulate matter with aerodynamic diameter equal to or less than 10 micrometers</td>
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<tr>
<td>RFFA</td>
<td>reasonably foreseeable future action</td>
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<td>RSA</td>
<td>Road Safety Audit</td>
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<td>Regional Transportation Commission of Southern Nevada</td>
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<td>SAFETEA-LU</td>
<td>Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users</td>
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<td>SHPO</td>
<td>State Historic Preservation Officer</td>
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<tr>
<td>SIP</td>
<td>State Implementation Plan</td>
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SR  Nevada State Route  
STIP  Statewide Transportation Improvement Program  
TIP  Transportation Improvement Program  
TDM  Transportation Demand Management  
TWLTL  two-way left-turn lane  
USACE  United States Army Corps of Engineers  
USEPA  United States Environmental Protection Agency  
USFS  United States Department of Agriculture Forest Service  
USFWS  U.S. Fish and Wildlife  
USGS  U.S. Geological Survey  
VIA  Visual Impact Assessment  
vpd  vehicles per day  
VQO  visual quality objective  
VRM  Visual Resource Management  
VRMS  Visual Resource Management System  
WSA  Wilderness Study Area
List of Mitigation Measures

The following list describes measures that will be implemented as part of the project to avoid, reduce, or otherwise mitigate socioeconomic and environmental impacts associated with the project. Mitigation measures and compliance with federal, state, and local laws and regulations with regards to applicable resource categories will be specified in the contract documents. The following list of mitigation measures and commitments are not subject to change or modification without prior written approval of the Federal Highway Administration (FHWA).

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<td>Air Quality</td>
<td>The analysis shows the project meets the transportation conformity requirements, and that impacts directly associated with project operation would not have a significant adverse effect on air quality. No air quality mitigation is required. Construction contractors will be required to obtain necessary permits that would include a dust control permit for construction activities. Reductions in pollutant emissions from diesel engines can be obtained through such strategies as reducing idling, properly maintaining equipment, and retrofitting diesel engines with diesel emission control devices. Impacts associated with fugitive dust generated by construction would be mitigated by standard dust control measures.</td>
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<td>3-10</td>
<td>Socioeconomic</td>
<td>A traffic plan would be created to maintain access during construction to Mountain Springs and the residential development near the eastern project terminus. NDOT would coordinate with project-area residents about the construction schedule. Under the Preferred Alternative, the mailboxes located near the fire station in Mountain Springs and on the north side of SR 160, roughly 250 feet east of Pinion Drive, would be moved to the Benedict Road/Pinion Drive frontage road for those living on the north side of SR 160 and to the south frontage road for those living south of SR 160. A small pullout would be located along the frontage roads for residents to pick up their mail and review the community bulletin board without disrupting traffic. School bus stops would be located in the same locations, preventing children from having to cross the highway to reach the bus stop. If an estimated 0.7 acre of new right-of-way is required, the NDOT Right-of-Way Division, under the guidance of the Relocation Assistance and Real Property Acquisition Policy Act of 1970 (Uniform Act), will negotiate with the property owners directly affected, ensuring that fair market value is received for the required right-of-way.</td>
</tr>
<tr>
<td>NDOT</td>
<td>3-16</td>
<td>Visual Resources</td>
<td>A landscape element will be part of the final design for the project through coordination with NDOT’s Landscape Architecture group. In Mountain Springs, a vegetative buffer will be placed between the frontage roads (shown on Exhibit 2-11) and SR 160, and existing trees will be preserved where possible. NDOT may spend up to 3 percent of the construction budget on landscape and aesthetics. Most likely, revegetation will occur in Mountain Springs during construction. Any cut or fill area where native vegetation is disturbed will be the location where revegetation takes place, as long as it is not located within the roadway clear zone. Through Mountain Springs, cut slopes would be “roughened” so that they would not have the consistent smooth appearance freshly cut slopes generally have. If retaining walls are constructed to avoid right-of-way impacts, color and texture to the concrete of the walls would be included to reduce color contrast that would occur with standard, untreated concrete. To mitigate concerns about the introduction of lighting along SR 160, the poles, mast arms, and fixture casings could be painted in a color that blends in with the surrounding environment. Lights would be placed only at conflict points and not through the entire length of the intersection. The standard NDOT LED fixtures have backlight-uplight-glare ratings that are equivalent to a full cut-off classification, which helps to mitigate sky glow, light trespass, and glare. Lighting will be focused away from the residential areas to minimize nighttime visibility of the lights from the residences.</td>
</tr>
<tr>
<td>Responsible Party</td>
<td>EA Page No. Reference</td>
<td>Mitigation Category</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------------------</td>
<td>---------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>NDOT</td>
<td>3-21</td>
<td>Waters of the U.S.</td>
<td>The preliminary opinion of the USACE is that the ephemeral washes adjacent to SR 160 are considered to be waters of the U.S. if they flow east toward the Las Vegas Wash. As noted above, during the design phase, NDOT will coordinate with the USACE to determine which drainages are jurisdictional and will require Section 404 permits before construction. NDOT will adhere to all permit terms and conditions. By federal law, every applicant for a federal permit or license for an activity that may result in a discharge into a water body must request a Section 401 water quality certification from the state that the proposed activity will not violate state and federal water quality standards. As noted in the December 2013 telephone memorandum in Appendix A, the USACE normally does not require mitigation for culvert extensions because by maintaining existing drainage patterns, there is no impact on waters of the U.S.</td>
</tr>
<tr>
<td>NDOT</td>
<td>3-22</td>
<td>Floodplains</td>
<td>Since SR 160 is aligned immediately adjacent to the 100-year floodplain of the east wash and, in some places, the floodplain encompasses the highway, spanning the floodplain or moving the highway are the available avoidance alternatives. Because of cost consideration and level of impacts, however, these alternatives are not practicable. The No-Build Alternative, which would avoid floodplain impacts but does not serve the purpose of and need for the project, is not practicable. A narrow (14-foot) median is proposed for the length of the Preferred Alternative. The narrow median, compared to a standard 30-foot median, will reduce floodplain impacts because there will be less encroachment on the floodplain and less highway surface area.</td>
</tr>
<tr>
<td>NDOT</td>
<td>3-24</td>
<td>Upland Habitat</td>
<td>Native Nevada cacti and yucca are protected and regulated by Nevada Revised Statutes. NDOT will salvage native Nevada cacti and yucca that will be affected by construction. NDOT’s contractor shall develop and implement a Noxious Weed Management Plan to prevent the establishment and spread of Nevada State listed noxious weeds per Nevada Revised Statute 555.</td>
</tr>
<tr>
<td>NDOT and Contractor</td>
<td>3-31</td>
<td>Threatened and Endangered Species</td>
<td>In March 2013, NDOT submitted a biological assessment for the desert tortoise to the USFWS in order to append the existing FHWA/NDOT/USFWS Programmatic Biological Opinion (PBO) No. 84320-2010-F-0285 on potential effects to the Mojave desert tortoise. In April 2013, USFWS noted the scope of the SR 160 project is not likely to jeopardize the continued existence of the Mojave desert tortoise and is within the scope of the PBO and appended the PBO (See Appendix A for 4/12/13 letter from USFWS). NDOT will adhere to all terms and conditions of the PBO and any other project-specific terms and conditions set forth by the USFWS. All right-of-way fencing on both sides of the roadway within the entire project limits will be replaced with three-strand smooth wire fencing, and desert tortoise fence fabric will be retrofitted to the right-of-way fence from MP 12.15 to MP 17.94. An existing cattle guard at MP 12.15 and an existing box culvert at MP 17.94 provide opportunities for fence tie-in such that the ROW can be completely enclosed. Where right-of-way fencing is at the right-of-way boundary line within these limits, the new fencing will be offset 1 foot toward the roadway to allow for installation of tortoise exclusion fencing without the need for temporary construction easements. Native Nevada cacti and yucca are protected and regulated by Nevada Revised Statutes. NDOT will salvage native Nevada cacti and yucca that will be affected by construction.</td>
</tr>
<tr>
<td>NDOT and Contractor</td>
<td>3-32</td>
<td>Wildlife</td>
<td>All right-of-way fencing on both sides of the roadway within the entire project limits will be replaced with 3 strand smooth wire fencing and desert tortoise fence fabric will be retrofitted to the existing ROW fence from MP 12.15 to MP 17.94. Where right-of-way fencing is at the right-of-way boundary line within these limits, the new fencing will be offset 1-foot towards the roadway to allow for installation of tortoise exclusion fencing without the need for temporary construction easements.</td>
</tr>
<tr>
<td>Responsible Party</td>
<td>EA Page No. Reference</td>
<td>Mitigation Category</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------------------</td>
<td>---------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>NDOT and Contractor</td>
<td>3-33</td>
<td>Wild Horses and Burros</td>
<td>Any vegetation and structures that will be removed will conform with the Migratory Bird Treaty Act to avoid impacts to listed migratory birds (50 CFR 10.13) that may be using vegetation and structures for nesting. When possible, removals should not occur during avian breeding season (generally March 15 through July 31). Raptors and owls may begin nesting as early as January. If removals must occur during avian breeding season, nesting surveys must be conducted by a biologist with experience in bird identification, general nesting behavior, nest and egg identification, and knowledge of habitat requirements for migratory birds. Bird nests containing eggs or young will not be disturbed until after the young have left the nest, including swallows nesting on structures, and bats using structures for roosting. NDOT will coordinate with BLM’s wild horse and burro specialist to determine whether modifications are required to the extended culvert at the Late Night Trailhead to ensure its continued use by burros.</td>
</tr>
<tr>
<td>NDOT and Contractor</td>
<td>3-38</td>
<td>Geology and Soils</td>
<td>No geology or soils mitigation is required. NDOT salvages topsoil on projects for reuse as needed throughout the project area.</td>
</tr>
<tr>
<td>NDOT</td>
<td>3-40</td>
<td>Public Use Lands</td>
<td>NDOT will coordinate with BLM on the need for temporary access to the Late Night and Cottonwood Valley Trailheads during construction.</td>
</tr>
<tr>
<td>Contractors</td>
<td>3-43</td>
<td>Construction Noise</td>
<td>Construction noise impacts will be temporary. Mitigation measures for stationary and mobile equipment could be addressed in the contract documents as needed and could address placement, hours of operation, noise-level limits, or proper maintenance of equipment.</td>
</tr>
</tbody>
</table>
## Impact Summary Table

<table>
<thead>
<tr>
<th>Resource</th>
<th>No-Build Alternative</th>
<th>Preferred Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project length (miles)</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Cost</td>
<td>$0</td>
<td>$20 million–$25 million (Phase 1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$40 million–$45 million (Phase 2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$60 million–$70 million (Total)</td>
</tr>
<tr>
<td>New right-of-way required (acres)</td>
<td>0</td>
<td>0–0.7</td>
</tr>
<tr>
<td>Affected federal lands (acres)(^1)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Residential and commercial displacements</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Environmental Justice populations?</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Visual impact?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Wetlands affected?</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Wash affected?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>100-year floodplain affected?(^2)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Rangeland and farmland affected?</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Affected upland habitat area (acres)</td>
<td>0</td>
<td>187(^3)</td>
</tr>
<tr>
<td>Endangered species affected?</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Noise receptors affected</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Air quality permit required?</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Contaminated sites affected</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Historic properties affected</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Archaeological properties affected</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Section 106 Programmatic Agreement required?</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Section 4(f) evaluation required?</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Indirect effects?</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Cumulative effects?</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

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\(^1\) No federal lands will be taken as a result of the project; however, during construction, access to the two BLM trailheads along SR 160 may be temporarily affected.

\(^2\) According to FEMA’s Flood Insurance Rate Maps, the Preferred Build Alternative would affect about 40 acres of floodplain. During a future design phase NDOT will conduct a survey to more precisely identify the 100-year floodplain boundaries and reevaluate the project’s potential floodplain impacts.

\(^3\) The 187 acres of affected upland habitat is within existing right-of-way.
Introduction

This Environmental Assessment (EA) has been prepared to comply with the National Environmental Policy Act (NEPA) of 1969 and the environmental regulations and policies of the Federal Highway Administration (FHWA) as the lead federal agency. The Bureau of Land Management (BLM) and United States Department of Agriculture Forest Service (USFS) are cooperating agencies on the EA.

The EA evaluates the potential social, economic, and environmental impacts of the proposed action for decision makers, while providing an opportunity for local, state, or other agencies and the general public to provide input or comment through scoping, public information meetings, and a design/location hearing. The magnitude of impacts is evaluated based on the context and intensity of proposed improvements, as defined in the Council on Environmental Quality (CEQ) regulations.

The proposed improvements to State Route (SR) 160 between the SR 159 intersection and Mountain Springs that are evaluated in this EA are the latest project as part of a multi-year expansion program along SR 160 between Las Vegas and Pahrump in the state of Nevada. Past improvements include a new SR 160 interchange at Interstate (I)-15, widening of SR 160 to between four and eight lanes between I-15 and SR 159, and widening SR 160 to four lanes from Mountain Springs to Pahrump.
1. **Purpose of and Need for the Proposed Action**

This section describes the purpose of and need for proposed improvements to the Nevada State Route (SR) 160 corridor. Purpose and need factors encompass improvements intended to correct not only existing problems but also those that may occur later during the project’s planning period.

1.1 **Description of Proposed Action**

1.1.1 **Location and Termini**

The study area is on the southwest edge of the Las Vegas metropolitan area roughly 15 miles southwest of downtown Las Vegas. The project termini are the SR 160/SR 159 intersection on the east and a point 1.24 miles west of the Mountain Springs Summit along SR 160 on the west in Clark County, Nevada (Exhibit 1-1). The 11-mile-long project is one of 10 completed or planned Nevada Department of Transportation (NDOT) SR 160 projects that are part of a multi-year SR 160 expansion program in Clark and Nye counties. These projects extend roughly 55 miles along SR 160 from I-15 in Las Vegas to Pahrump (Exhibit 1-2). As of 2014, of the SR 160 projects noted in Exhibit 1-2, only the section evaluated in this study and a section from the Nye County line to Pahrump have yet to be improved.

SR 160 projects expanding the highway to four lanes (two in each direction) adjacent to this project have been completed, leaving the section under study the sole remaining two-lane section of SR 160 in Clark County.

SR 160 passes through the unincorporated community of Mountain Springs on the west end of the study area and it is aligned about 1 mile south of the community of Blue Diamond on the east end. Most of the land adjacent to SR 160 in the study corridor is owned by the United States Government and administered by the Bureau of Land Management (BLM) or the United States Department of Agriculture Forest Service (USFS), with some private land ownership near both project termini (Exhibit 1-3). The eastern part of the study area crosses the BLM-managed Red Rock Canyon National Conservation Area (NCA), whereas the western part of the study area crosses USFS’s Spring Mountains National Recreation Area (NRA) in the Humboldt-Toiyabe National Forest.

1.1.2 **Proposed Action**

NDOT and the Federal Highway Administration (FHWA) are studying alternatives to improve the safety and travel efficiency in the SR 160 corridor from the SR 160/SR 159 intersection to a point 1.24 miles west of the Mountain Springs Summit along SR 160. The proposed action includes the following elements:

- Widening the roadway from two travel lanes to four.
- Adding a 14-foot-wide median (painted or raised) for the length of the study corridor. Depending on the location within the study corridor, the median would serve as a two-way left-turn lane (TWLTL) or consist of a 2-foot wide median island at some locations in Mountain Springs used to delineate left turn pockets and a 14-foot wide island near the SR 159 intersection.
- Constructing an 8-foot-wide shoulder with bike lane symbols on both sides of the road.
- Evaluating options for eliminating conflicts between faster-moving through traffic and slower-moving traffic entering and exiting SR 160 in Mountain Springs.
- Improving roadway geometrics to address safety concerns.
- Lighting and intelligent transportation system (ITS) features to improve safety.

As noted, the project is one of 10 of a multi-year SR 160 expansion program in Clark and Nye counties. The proposed action would fill a gap between recent SR 160 improvement projects immediately east and west of the study area. The proposed action, which is the next step in implementing future highway improvements recommended in regional and county transportation plans, would neither require nor foreclose other future transportation improvements identified in the regional transportation plan of the Regional Transportation Commission of Southern Nevada (RTC).
1.2 Purpose and Need

1.2.1 Purpose of Proposed Action
The purpose of the proposed action is to improve safety and operational efficiency on SR 160 in response to existing and proposed development in the Las Vegas and Pahrump areas while minimizing impacts to the natural and built environment.

1.2.2 Need for Proposed Action
The need for transportation improvements along the SR 160 corridor is based on a combination of factors related to:

- Safety
- Roadway deficiencies
- Traffic demand
- Capacity
- Route continuity/regional planning

The rest of this section discusses these factors in detail. The need for improvements sets the stage for developing and evaluating possible improvement alternatives. The CD at the back of this document contains technical memorandums developed for the project regarding crash analysis, roadway deficiencies, traffic operations, and traffic forecasts.

Safety
NDOT measures roadway safety by the frequency (rate) and severity of crashes. An important objective of any transportation improvement is to minimize overall crash potential through roadway mainline and intersection design features and access management.

To understand the crash history in the project area, NDOT conducted two crash studies. In April 2010, NDOT Safety Engineering, in coordination with the Roadway Design Division, conducted a Road Safety Audit (RSA) to identify potential road safety issues in the study area and to recommend measures to mitigate them. In February 2012, NDOT collected and analyzed crash data to update the data used in the 2010 RSA. Crash information for the study area was obtained from databases provided by the NDOT Traffic and Safety Division for the 5-year period of November 2006 to November 2011. A total of 280 crashes occurred during that time.

Crash Severity. Table 1-1 lists crashes by severity in the study corridor. The severity categories are fatal, injury, and property damage only. The 10 fatal crashes resulted in 12 fatalities and 4 injuries while the 109 injury crashes resulted in 148 injuries as a result of the crashes. Injury crashes include the following:

- Incapacitating injury—any injury other than fatal that prevents an injured person from walking, driving, or performing activities the person was capable of before the injury occurred.
- Non-incapacitating evident injury—any injury other than a fatal or incapacitating injury that is evident to observers at the scene of the crash.
- Possible injury—any injury not noted above and includes claim of injuries not evident.

Of the 280 crashes over the 5-year period, 91 occurred in the eastern 6 miles of the project area and 189 occurred in the western 5 miles. Of note among the crashes in the eastern 6 miles are 8 crashes involving burros or wild horses between the SR 159 intersection and the beginning of the cattle guard about 1 mile west of the SR 159 intersection,

<table>
<thead>
<tr>
<th>Severity</th>
<th>Nov. 2006 to Nov. 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># of crashes</td>
</tr>
<tr>
<td>Fatal</td>
<td>10</td>
</tr>
<tr>
<td>Injury</td>
<td>109</td>
</tr>
<tr>
<td>Property damage only</td>
<td>161</td>
</tr>
<tr>
<td>Total</td>
<td>280</td>
</tr>
</tbody>
</table>

Source: NDOT Traffic and Safety Division
Note: These numbers include 8 motor vehicle crashes with wild horses or burros.

a There were 12 fatalities and 4 injuries as a result of the crashes.
b There were 148 injuries as a result of the crashes.
and the 16 crashes at the SR 160/SR 159 intersection. In the western part of the study area, a curvy 1.8-mile segment of SR 160 east of Mountain Springs (near the Mount Potosi Canyon Road intersection) accounted for 3 of the 10 fatal crashes (30 percent) in the project area and 38 of the 109 injury crashes (35 percent).

**Crash Type.** The crash data were examined to determine the most common types of crashes in the project area. Most crashes along SR 160 in the study area were non-collision (ran off the road) with 195 crashes (70 percent of all crashes). Of the 195 non-collision crashes, 7 were fatal crashes resulting in 7 fatalities and 2 injuries, and 70 were injury crashes resulting in 79 injuries. The predominant contributing factor was failure to keep in the proper lane. Other crash types include 40 angle crashes, 18 sideswipe crashes, 16 rear-end crashes, 4 sideswipe crashes while overtaking, 3 head-on crashes while overtaking, 2 backing crashes, and 2 unknown crash types.

**Crash Rates.** NDOT uses the information from the statewide crash database to develop statewide average crash rates for highways. The Nevada statewide average for NDOT-maintained, rural principal arterial roadways was used to evaluate the crash rate or frequency along SR 160. Crash rates are expressed as crashes per 100 million vehicle miles traveled and include all reported crashes that caused a fatality, injury, or property damage. Table 1-2 lists the fatal, injury, property damage only, and total crash rates along SR 160 in the study area between 2006 and 2011, as compared to other NDOT-maintained rural principal arterials.

The statewide total crash rate for an NDOT-maintained rural principal arterial is 65 crashes per 100 million vehicle miles traveled (per NDOT’s *Nevada Traffic Crashes 2010*), while the total crash rate along this section of SR 160 is 157 crashes per 100 million vehicle miles traveled, nearly 2½ times the statewide average. Of the 280 total crashes, 10 were fatal, resulting in a total of 12 fatalities. The fatal crash rate in the study area is 5.6, nearly three times the statewide rate. The injury crash rate in the study corridor was triple the statewide rate, and the property damage only rate was more than double the statewide rate.

The critical crash rate can also be used to determine the safety of a highway as compared to similar roadways. The critical crash rate is a statistical tool that assists in screening for high crash locations by using a confidence interval to determine if there is a potential safety problem. It uses a statistical test to determine whether the crash rate for an intersection or roadway segment is abnormally high when compared with the rate for other locations with similar characteristics. The statistical test is based on the assumptions that traffic crashes are rare events and the probability of their occurrence can be approximated by a formula using the crash rate for similar road types, number of vehicles traveling and entering a road section (vehicle exposure), and a probability factor determined by the level of statistical significance desired. If the actual (observed) crash rate for a roadway is equal to or greater than the critical rate, the deviation is probably not due to chance and may be considered to be significantly greater than average.

For the SR 160 corridor, NDOT used a confidence interval of 95 percent. Thus, if the crash rate along SR 160 is greater than the critical crash rate, there is a 95 percent confidence level that the crash occurrence on SR 160 is not due to chance. Rather, there is an issue with SR 160 that is causing a greater number of crashes than would be expected on this type of roadway. NDOT evaluated the 2006–2011 crash history of SR 160 and has determined the critical crash rate for a comparable route type and configuration as shown in Table 1-3.

This analysis indicates that the injury, property damage only, and total crash rate on SR 160 in the study area exceed the critical crash rate. The fatal crash rate on SR 160 is less than the critical crash rate, but as noted above,

**TABLE 1-2**

<table>
<thead>
<tr>
<th>Severity</th>
<th>Statewide Crash Rate</th>
<th>Project Crash Rate</th>
<th>Percent of Statewide Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatal</td>
<td>2</td>
<td>5.6</td>
<td>280</td>
</tr>
<tr>
<td>Injury</td>
<td>20</td>
<td>61.1</td>
<td>306</td>
</tr>
<tr>
<td>Property damage only</td>
<td>42</td>
<td>90.2</td>
<td>215</td>
</tr>
<tr>
<td>Total Crash Rate</td>
<td>65</td>
<td>157</td>
<td>242</td>
</tr>
</tbody>
</table>

Note: Because of rounding, “Total Crash Rate” row does not equal the totals for the “Statewide Crash Rate” and “Project Crash Rate” columns.

* Statewide crash rate is for NDOT-maintained rural principal arterials (2010)

The total, fatal, injury, and property damage only crash rates in the SR 160 corridor are two to three times greater than statewide rates.
the 10 fatal crashes that occurred between 2006 and 2011 is nearly three times greater than the statewide rate for a similar roadway facility. The total crash rate along SR 160 is roughly 50 percent higher than the critical crash rate. The notably higher crash experience along SR 160 than on similar roadways in Nevada makes safety a key need factor for transportation improvements along SR 160. Improvements to SR 160 must address the safety deficiencies to be considered a reasonable alternative.

For a more detailed discussion of traffic safety along the SR 160 corridor, refer to the Crash Analysis and Critical Crash Rate Analysis technical memorandums on the CD at the back of this document.

Roadway Characteristics and Deficiencies

The ability of a highway to serve traffic safely and efficiently is influenced not only by traffic characteristics but also by highway design features. This section evaluates SR 160 geometric and other roadway deficiencies that contribute to travel efficiency and safety problems. As noted in the Safety section, 70 percent of all crashes in the SR 160 study area corridor are classified as “ran off the road” crashes. In general, off-road crashes by single vehicles usually indicate tight curves with inadequate banking, narrow shoulders, a high rate of speed, and two-lane roads, all of which are present in the study area. These roadway design features increase the probability that driver error may result in a run off the road crash.

SR 160 is a two-lane roadway with a third truck climbing lane along parts of the roadway (Exhibit 1-4). A painted median in Mountain Springs is used to separate turning and through traffic. Throughout the corridor, the right-of-way varies in width from 135 to 400 feet. From SR 159 to roughly 6 miles west, SR 160 consists of two 12-foot-wide general purpose lanes with 8-foot-wide paved shoulders that also serve as bike lanes. The remainder of the study area consists of three 12-foot general purpose lanes with 8-foot paved shoulders, with the climbing lane in the westbound (uphill) direction for most of the length to the Mountain Springs Summit. West of the summit, the third lane is used as a truck climbing lane in the eastbound (uphill) direction. The widest section, near the Mountain Springs Summit through the community of Mountain Springs, consists of 3 general purpose lanes with 14-foot median and paved shoulders.

NDOT evaluated conditions along SR 160 to identify geometric and other roadway deficiencies. The results of the review are described in the following text. For a more detailed discussion of roadway characteristics and deficiencies along the SR 160 corridor, please see the Road Safety Audit Report, Road Safety Audit Update and Existing Roadway Deficiency Report located on the CD at the back of this document.

Horizontal Curves. Horizontal alignment (curves) refers to the curvature of the road at a given design speed. Design speed is the maximum speed that can be safely maintained over a specific section of highway. It is affected by highway type, topography, adjacent land use, and driver expectations. Curves should be designed to allow the driver to negotiate them safely without reducing speed. The longer the radius of a curve, the more gradual and safer it is, providing that the curve has the proper superelevation. Superelevation is the degree to which the roadway is banked to offset the tendency of vehicles to slide outward or overturn on a curve.

The geometric review identified 13 curves that fall short of the American Association of State Highway and Transportation Officials (AASHTO) design guidelines (Exhibit 1-5). AASHTO is a standards setting body which publishes specifications, test protocols, and guidelines which are used in highway design and construction throughout the United States. The curves would require an increase in the radius of the horizontal curve, and the horizontal alignment would need to be revised (straighter curves). For many curves, the straight alignment emerging from the curve is too short to accommodate the necessary superelevation.

### Table 1-3

<table>
<thead>
<tr>
<th>Severity</th>
<th>Number of Crashes</th>
<th>Project Crash Rate</th>
<th>Critical Crash Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatal</td>
<td>10</td>
<td>5.6</td>
<td>11.4</td>
</tr>
<tr>
<td>Injury</td>
<td>109</td>
<td>61.1</td>
<td>42.4</td>
</tr>
<tr>
<td>Property damage only</td>
<td>161</td>
<td>90.2</td>
<td>72.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>280</strong></td>
<td><strong>157</strong></td>
<td><strong>102.6</strong></td>
</tr>
</tbody>
</table>

Note: Crash rate is per 100 million vehicle miles traveled

The injury, property damage only, and total crash rate on SR 160 exceed the critical crash rate.
Seven of the 13 curves that do not meet the AASHTO design guidelines are on the 1.8-mile section of SR 160 east of Mountain Springs near the Mount Potosi Canyon Road intersection, a high crash area. That segment accounted for 30 percent of the fatal crashes in the study area and 35 percent of the injury crashes. At an existing curve in the area, several vehicles have gone off the road, hit a berm (that is, a mound of earth separating the road from the wash), and vaulted into a drainage wash.

**Roadside Clearance.** A field review along SR 160 was conducted to review roadside clearance. Outside the travel lane, there should be a clear, unobstructed, relatively flat area beyond the edge of pavement that allows a driver to stop safely or to regain control of a vehicle that leaves the roadway. Following AASHTO criteria, it is NDOT’s policy to use 30 feet as a clear zone (roadside area available for safe use by errant drivers) for roadways such as SR 160.

There were no roadside clearance issues for eastbound and westbound traffic in the eastern 7 miles of the project area. The roadside slopes generally are flat, and there are no obstructions within the 30 feet of clear zone not shielded by a guardrail. Along the 1.8-mile high crash section of SR 160 east of Mountain Springs near the Mount Potosi Canyon Road intersection, there are a number of curves with rock cut within the recommended clear zone. Several crashes on SR 160 involved vehicles running off the roadway and striking a guardrail.

**Acceleration/Deceleration Lanes.** Where the speed limit is 65 mph in the study area, there are several access points without acceleration and deceleration lanes. They include the heavily used recreation parking area for the BLM’s Red Rock Canyon Late Night Trailhead on the north side of SR 160 (no acceleration lane), the Cottonwood Valley Trailhead on the south side of SR 160, and Mount Potosi Canyon Road. An acceleration lane improves traffic safety by giving traffic entering a roadway space to accelerate to the posted speed before entering the traffic flow; a deceleration lane improves safety by allowing drivers to pull off the main road and decelerate safely in order to turn, so that traffic behind the turning vehicle is not slowed or halted.

**Traffic Demand**

This section describes the existing and future traffic volumes on SR 160 in the study area. Roadways typically are designed to accommodate projected traffic volumes 20 to 25 years in the future. For this study, 2035 is the “design year” or “horizon year,” 20 years after the anticipated start of construction. Improvements to SR 160 would result in more efficient and reliable transportation through the study area. Increasing travel efficiency and reliability on SR 160 would reduce transportation costs for commuters, commercial trips, and other trips along SR 160, and improve traffic flow.

**Existing Traffic Volumes.** Traffic data were obtained from NDOT Count Station 360, the only count station within the study corridor. The count station is located along SR 160, 0.3 mile west of the SR 159 intersection. NDOT’s most recent annual average daily traffic (AADT) count data is from 2010. This count showed the AADT for this part of SR 160 is 7,800 vehicles per day (vpd). Table 1-4 lists the historic AADT along SR 160 over a 20-year period.

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>360</td>
<td>SR 160: 0.3 mile west of SR 159</td>
<td>3,065</td>
<td>4,850</td>
<td>7,700</td>
<td>8,600</td>
<td>7,800</td>
</tr>
</tbody>
</table>

The review of the historic AADT data reveals that SR 160 has experienced growth of about 5 percent per year between 1991 and 2010. The data also reveal that SR 160 experienced a growth rate of about 11 percent per year between 1991 and 2000, but only 0.1 percent per year between 2000 and 2010.

**Future Traffic Volumes.** The horizon year traffic forecasts under the No-Build Alternative were determined using NDOT historic traffic data and available data from Clark County to forecast future traffic growth. A growth rate was determined for the corridor of 2.5 percent per year for the first 10 years (2015–2025) and 3 percent for the next 10 years (2025–2035).
As noted, NDOT’s latest AADT count data is from the year 2010 (7,800 vpd). The 2.5 percent per year growth rate was applied to develop base year 2015 AADT of 8,825 vpd. NDOT uses 2015 as the base year because that is the anticipated start of construction. The 2.5 and 3 percent growth rates were applied to the base year AADT to determine an AADT of 11,297 in 2025 and a horizon year 2035 AADT of 15,182 (Table 1-5). For a more detailed discussion of future traffic volumes along the SR 160 corridor, please see the Traffic Forecast technical memorandums located on the CD at the back of this document.

Highway Capacity

Traffic volume is not the only factor that indicates roadway congestion, especially during heavy travel periods. Level of service (LOS) is a qualitative measure of operational conditions within a traffic stream as perceived by motorists. LOS characterizes the operating conditions on the facility in terms of traffic performance measures related to speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience (A Policy on Geometric Design of Highways and Streets, AASHTO, 2001). LOS is designated from A to F, with LOS A representing free-flow traffic and LOS F gridlock conditions.

Three measures of effectiveness are used to determine the LOS for a two-lane highway segment, such as SR 160 in the study area. These measures are:

- **Average Travel Speed**—reflects mobility on a two-lane highway.
- **Percent Time Spent Following**—represents the freedom to maneuver and the comfort and convenience of travel. It is the average percentage of time that vehicles must travel in platoons (groups) behind slower vehicles due to the inability to pass.
- **Percentage of Free Flow Speed**—represents the ability of vehicles to travel at or near the posted speed limit.

On a two-lane highway, such as SR 160, speed and delay due to passing restrictions are important to motorists. Additional characteristics that affect actual operations and driver perceptions of service include passing capacity (ability to pass) and passing demand (desire to pass).

LOS C is the targeted LOS for a facility such as SR 160. At LOS C the road is considered at or near free-flow conditions, most experienced drivers are at ease, roads remain safely below but efficiently close to capacity, and posted speed is maintained. LOS D or worse (LOS E or F) is considered unacceptable for this type of facility.

To calculate LOS along SR 160, it was necessary to break the study area into different segments to account for different roadway grades, posted speed limits, and roadway typical sections. Thus, SR 160 between SR 159 and Mountain Springs was divided into five segments to determine LOS (Exhibit 1-6).

During 2015 AM and PM peak periods, LOS generally is at an acceptable LOS C or better (see Exhibits 1-7 and 1-8, and Table 1-6). Some segments operate at LOS D or worse, which is considered unacceptable for this type of facility. LOS D means a high percentage of vehicles are traveling in a platoon and the percentage of time spent following is quite noticeable, which may cause substantial drops in vehicle speed. Those segments include:

- Segment 1 eastbound AM peak and westbound AM and PM peak
- Segment 3 eastbound AM peak
- Segment 4 eastbound PM peak and westbound AM and PM peaks
- Segment 5 westbound AM and PM peaks

In 2035, analysis indicates that increased traffic volumes generally will cause SR 160 to operate at an unacceptable LOS D or worse for both the AM and PM peak periods under the No-Build Alternative (see Exhibits 1-9 and 1-10 and Table 1-6). The only exceptions are the areas where there are climbing lanes in Segments 3, 4, and 5. Segment 3 westbound and Segment 5 eastbound during both the AM and PM peak hours and Segment 4 eastbound during the AM peak will operate at an acceptable LOS C or better.
A traffic operation analysis conducted for the SR 160/SR 159 and SR 160/Avery Street intersections revealed that both intersections now operate at an acceptable LOS C or better. Analysis of these intersections for the horizon year (2035) revealed that both intersections would continue to operate at an acceptable LOS C or better under the No-Build Alternative.

For a more detailed discussion of traffic operations along SR 160, please see the Traffic Operations Analysis “No Build” technical memorandum located on the CD at the back of this document.

**Route Importance/Regional Planning**

SR 160 is the primary transportation link connecting the Las Vegas metropolitan area, specifically southwest Las Vegas, downtown Las Vegas, and I-15, to Pahrump and Death Valley National Park. Most segments of SR 160 between I-15 on the east and Pahrump on the west have been widened to address capacity and safety needs (Exhibit 1-2).

The proposed project is included in the 2012–2021 Transportation System Projects approved by the State Transportation Board of Directors on October 10, 2011. The project is found in the FY 2014–2017 Statewide Transportation Improvement Program (STIP), page Statewide 6, and in the 2013 Annual Work Program, as part of the FY 2015–Short-Range Element as project CL200749-15. It also is listed in the RTC’s Transportation Improvement Program 2013–2016 as project number 4018. RTC’s Regional Transportation Plan 2013–2035, approved in 2012, discusses the need for SR 160 to be expanded to four lanes to Mountain Springs as a regional strategic investment. The plan notes that the introduction of large scale commuter traffic along this corridor could result in capacity and congestion issues. The proposed project is also included in the Northwest Clark County Land Use Plan (2013).

### 1.2.3 BLM Purpose and Need

The BLM’s purpose for the SR 160 Corridor Improvements project is to respond to the NDOT and FHWA proposal for any additional Federal-aid highway right-of-way under 23 United States Code (U.S.C.) Section 107 in accordance with the BLM/FHWA/NDOT Memorandum of Understanding & Operating Manual (2009). A right-of-way grant is needed to construct, operate, and maintain any additional new road that may be located, in part, on public land administered by the BLM. The BLM will decide whether to deny the right-of-way, grant the right-of-way, or grant the right-of-way with modifications.

<table>
<thead>
<tr>
<th>Table 1-6</th>
<th>Comparison of 2015 and Future Levels of Service on SR 160</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Segment</strong></td>
<td><strong>Direction</strong></td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Segment 1</td>
<td>Eastbound</td>
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<td>Westbound</td>
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<td>Segment 2</td>
<td>Eastbound</td>
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<td>Segment 4</td>
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<td>Westbound</td>
</tr>
<tr>
<td>Segment 5</td>
<td>Eastbound</td>
</tr>
<tr>
<td></td>
<td>Westbound</td>
</tr>
</tbody>
</table>

**Note:** Bold LOS designations indicate an unacceptable LOS for an NDOT-maintained rural principal arterial facility.
1.2.4 USFS Purpose and Need
The USFS’s purpose for the SR 160 Corridor Improvements project is to respond to the NDOT and FHWA proposal for any additional Federal-aid highway right-of-way under 23 U.S.C. Section 107 and in accordance with the FHWA/USFS Memorandum of Understanding (1998, modified 2003). A right-of-way grant is needed to construct, operate, and maintain any additional new road that may be located, in part, on public land administered by the USFS. The USFS will decide whether to deny the right-of-way, grant the right-of-way, or grant the right-of-way with modifications.

1.2.5 Summary of Purpose and Need
The proposed action is needed to address the substandard characteristics in the study area in order improve safety and operational efficiency on SR 160. The configuration of SR 160 in the study area is functionally deficient in many areas. Several areas have curves that do not meet AASHTO guidelines, roadside clear zones that do not meet NDOT policy, and a lack of acceleration/deceleration lanes. These functional deficiencies combined create substandard conditions in the study area, resulting in a crash rate that is higher than the statewide average for all crash types. The overall crash rate along SR 160 is roughly 50 percent higher than the critical crash rate. Current traffic volumes in the study area result in some segments of SR 160 operating at an unacceptable LOS. Based on projected 2035 traffic volumes, most of SR 160 in the study area will operate at an unacceptable LOS D or worse during the peak travel periods if no improvements are made.
Exhibit 1-1
Project Location

SR 160 Study Limits

INTERSTATE 5

INTERSTATE 15

NEVADA

CALIFORNIA

Blue Diamond

Las Vegas

Mountain Springs

Pahrump

SR 160 Corridor Study - SR 159 to Mountain Springs
SR 160 Environmental Assessment

Not to scale
SR 160, Warm Springs Road from Industrial Rd. to Las Vegas Blvd. (SR 604) - Constructed
2 SR 160, (Phase 1) Las Vegas Blvd. (SR 604) at Windmill Lane to Valley View Blvd. - Constructed
3 SR 160, Blue Diamond Road at I-15 - Constructed
4 SR 160, (Phase 2A) Valley View Blvd. to Decatur Blvd. and at the UPRR Crossing - Constructed
5 SR 160, (Phase 2B) Decatur Blvd. to Rainbow Blvd. - Constructed
6 SR 160, Rainbow Blvd. to Durango Dr. - Constructed
7 SR 160, Durango Dr. to Red Rock Canyon Rd. (SR 159) - Constructed
8 SR 160, SR 159 to Mountain Springs - Current Project
9 SR 160, Mountain Springs to Nye County Line - Constructed
10 SR 160, from the Nye County Line to 0.27 miles south of Coconino Lane - Planned
Exhibit 1-4
SR 160 Existing Lane Configuration

- Scale in Miles

- Blue Diamond
- Mountain Springs
- Mt. Potosi Canyon Rd.

Looking West

LEGEND
- 2-Lane Roadway (1 lane in each direction)
- 3-Lane Roadway (2 lanes westbound, 1 lane eastbound)
- 3-Lane Roadway (1 lane westbound, 2 lanes eastbound)

Westbound
Eastbound
SR 160 Study Limits

SR 160 Environmental Assessment
SR 160 Corridor Study - SR 159 to Mountain Springs
Exhibit 1-5

Existing Curves That Do Not Meet AASHTO Guidelines
Exhibit 1-7

2015 Traffic Operations – Morning Peak Hours

Legend:
- Level of Service A
- Level of Service B
- Level of Service C
- Level of Service D
- Level of Service E
- SR 160 Study Limits

SR 160 Corridor Study - SR 159 to Mountain Springs

SR 160 Environmental Assessment
Exhibit 1-9

2035 No-Build Traffic Operations – Morning Peak Hours

Legend:
- Level of Service A
- Level of Service B
- Level of Service C
- Level of Service D
- Level of Service E
- SR 160 Study Limits

Scale in Miles
Exhibit 1-10
2035 No-Build Traffic Operations – Afternoon Peak Hours

Legend:
- Level of Service A
- Level of Service B
- Level of Service C
- Level of Service D
- Level of Service E
- SR 160 Study Limits

Scale in Miles

0 1 2

SR 160 Environmental Assessment
SR 160 Corridor Study - SR 159 to Mountain Springs
2. Alternatives

This section describes the alternatives NDOT considered to address the safety, operational, and geometrical deficiencies on SR 160 discussed in Section 1. It begins with a brief discussion of the improvement concepts NDOT evaluated and dismissed (Other Alternatives Considered). A more detailed discussion of the project’s alternatives development and screening process is found in the Alternative Evaluation technical memorandum and Project Scoping Report on the CD at the back of this document. Following the “Other Alternatives Considered” section is a detailed description of NDOT’s Preferred Alternative (Alternative 1, Four Lanes with a Center Median).

Throughout this section, mile posts (MP) along SR 160 are called out to provide the reader with a reference point as to where certain highway improvements are to be located. Exhibit 2-1 provides an aerial overview of the project area along with the location of MP along SR 160.

2.1 Other Alternatives Considered

The development and screening of the preliminary alternatives was an iterative process that began by evaluating Build Alternatives and Transportation Demand Management (TDM) alternatives. TDM alternatives such as light rail, high occupancy vehicle (HOV) lane, or a park and ride lot, attempt to address transportation deficiencies on SR 160 by reducing the number of vehicles that use the highway rather than improving the highway. The preliminary range of Build Alternatives considered was:

- Widen to 4 general purpose lanes with a 14-foot median
- Turnouts in the eastbound direction (areas on the side of the road for slow-moving vehicles to turn off the roadway to allow following vehicles to pass)
- Passing lanes in the eastbound direction
- Westbound truck climbing lane
- Mountain Springs bypass

The TDM alternatives were eliminated from further consideration because they would not fully address project purpose and need and there was little support from local government and members of the public. Amongst the Build Alternatives, widen to four general purpose lanes was selected for additional study because it would satisfy the project’s purpose and need to improve operational efficiency and safety. The other alternatives would not address the obsolete design along SR 160, and the Mountain Springs bypass would have the greatest environmental impacts and was not supported by the public.

Having decided to further evaluate the four-lane Build Alternative, the project team developed four different alternatives that were shown to the public at the March 2012 public information meeting:

- Alternative 1 – Four Lanes with Center Median
- Alternative 2 – Local Frontage Road
- Alternative 3 – Right In, Right Out
- Alternative 4 – Mountain Springs Diamond Interchange

In addition, NDOT considered the No-Build Alternative which does not include safety or capacity improvements and only routine maintenance would be performed along the roadway. Since the No-Build Alternative would not meet the need for the project as discussed in Section 1.2.2, it is not considered a reasonable course of action, but it is retained for evaluation as a basis of comparison to the Preferred Alternative.

NDOT selected Alternative 1 as the Preferred Alternative for further engineering and environmental analysis because it received the greatest amount of support from residents of Mountain Springs at the March 2012 public information meeting, it would improve safety through Mountain Springs, maintain most of the existing access, lower the speed limit through the community, and remain on the existing alignment. It is also estimated to have the lowest cost of the four alternatives. The alternatives development and screening process is discussed in more
detail in the *Alternatives Evaluation* technical memorandum and *Project Scoping Report* on the CD at the back of the document.

### 2.2 Description of the Preferred Alternative

The No-Build Alternative was retained as a baseline for comparison to the Preferred Alternative.

Based on a review of the comparative cost estimates, operations analysis, input from NDOT staff, and public input, Alternative 1, Four Lanes with a Center Median, was selected as the Preferred Alternative for further engineering and environmental analysis. It consists of widening SR 160 to four general purpose lanes (two in each direction) with a 14-foot median and 8-foot shoulder/bicycle lane (Exhibit 2-2 and 2-3). Following the selection of Alternative 1 as the Preferred Alternative, design refinements, as noted below, were made based on input from federal Cooperating Agencies and a more detailed review of the alternative. Alternative 1 would improve ingress and egress in Mountain Springs and improve the geometry of the roadway throughout the project corridor. It would have a posted speed of 45 mph through Mountain Springs and 55 to 65 mph between Mountain Springs and the project termini. Ingress and egress in Mountain Springs would be improved by providing protected left-turn pockets for the various driveways in Mountain Springs. In addition, SR 160 would be moved slightly off its existing alignment in some locations to improve geometric deficiencies. The improved geometry would correspond to a design speed that is 10 mph greater than the planned posted speed. Currently a number of segments of SR 160 have a design speed which is equal to or lower than its posted speed.

NDOT is considering constructing the project in 2 phases (Exhibit 2-4). Phase 1 would begin at the project’s eastern terminus (the SR 160/SR 159 intersection) and continue roughly 6 miles to the west (near MP 17, by the Cottonwood Valley Trailhead). Phase 1 has an estimated cost of $20 to $25 million, with an anticipated start of construction in fiscal year 2015–2016. The second phase would construct the remaining 5 miles through the mountainous areas and the Mountain Springs community. The second phase has an estimated construction cost of $40 to $45 million. The construction start date for Phase 2 has not been determined. The estimated cost for the entire length of the Preferred Alternative is estimated at $60 to $70 million based on the 30 percent construction plans.

The eastern 7 miles of the project (from MP 11 [east terminus] to MP 18) would consist of four 12-foot travel lanes with a 14-foot painted median and 8-foot shoulders with bike lane symbols. Traffic on SR 160 would be free-flow through the SR 159 and Avery Street intersections. SR 159 traffic would have to stop at stop signs at SR 160.

This intersection will remain a two-way stop with a stop condition on SR 159 until a higher order control (traffic signals, roundabout) is warranted. At the Avery Street intersection with SR 160, traffic on Avery Street would have to stop at stop signs at SR 160 and right-in, right-out access would be provided (Exhibit 2-5).

![Alternative 1 typical section for alignment east of Mount Potosi Canyon Road](image)

A scenic overlook was proposed as part of this project. The overlook would have been located along the north side of SR 160 roughly 0.5 mile west of the Cottonwood Valley Trailhead and parking area. The scenic overlook would have provided a view of Red Rock Canyon’s rock/geological formations and the Las Vegas Valley. The overlook would have been located adjacent to what is thought to be a remnant of the Old Spanish Trail,
representing a major piece of local and regional history. A preliminary version of the EA was provided to the Cooperating Agencies in the spring of 2014. The BLM noted the scenic overlook may attract people to an environmentally sensitive area and result in damage to the natural resources in that area. Based, in part, on these concerns, the scenic overlook was eliminated as part of the preferred alternative.

Through Mountain Springs (Exhibit 2-6), right turns would be permitted to and from roadways and SR 160 will include raised median islands and left turn pockets to improve the safety of motorists turning into or out of the community. Left turns would not be permitted except at the designated intersections discussed below.

Some intersections along SR 160 in Mountain Springs would become “high-T” intersections. The “high-T” intersections would have a 2-foot-wide raised island to delineate a left-turn pocket, storage space for vehicles turning left, and an acceleration area for turning vehicles merging with through traffic. In Mountain Springs, high-T intersections would be located at Williams Ranch Road and a new combined access point to Benedict Road and Pinion Drive. The triangular part of the median would consist of painted lines on the roadway to assist with snow removal on the highway, per the request of the local NDOT maintenance crew.

A high-T intersection could be constructed at the entrance to a popular horse trail in the Spring Mountain NRA near MP 20, roughly three-quarters of a mile east of the Pinion Drive intersection. However, Mountain Springs’ residents have voiced concerns over making the unofficial trailhead easier to access. Additionally, preliminary indication from the USFS is that this will not be converted in to an official trailhead. The intersection could be constructed without a high-T intersection. A left turn to this road would not be permitted for motorists traveling eastbound on SR 160, and a raised median would be in place. A decision regarding the type of intersection at this location will be made during the final design phase of the project.

In front of the Mountain Springs Fire Station, a large median opening would allow emergency vehicles to enter and exit the fire station from either direction. Left-turn lanes with refuge areas would be provided in both directions and an access point to Rosary Road and residences would be located directly across from the fire station. A frontage road roughly a quarter-mile long would be constructed south of SR 160 from the fire station median opening to a location opposite the new Benedict Road/Pinion Drive access point. The frontage road,
within existing NDOT right-of-way, would provide access to the residences on Rosary Road and those with driveways off existing SR 160 east of Rosary Road.

As noted, access to Benedict Road and Pinion Drive from SR 160 would be consolidated to one access point. A frontage road roughly 800 feet long, within existing NDOT right-of-way, would provide access to both streets from SR 160. At the east end of this frontage road, near Pinion Drive, access to and from SR 160 would be provided by a right-in/right-out access point. This would allow for easier movement for school buses that pick up students living north of SR 160 at this location.

Under the Preferred Alternative, the location of the mailboxes and community bulletin boards in Mountain Springs would be moved. The mailboxes and community bulletin boards near the fire station and on the north side of SR 160 roughly 250 feet east of Pinion Drive would be moved to the Benedict Road/ Pinion Drive frontage road for those living on the north side of SR 160 and on the south frontage road for those south of SR 160 (Exhibit 2-6). A small pullout would be located along the frontage roads for residents to pick up their mail and review the community bulletin board without disrupting traffic. School bus stops would be located in the same places, preventing children from having to cross the highway to reach their school bus stop.

A right-turn pocket for westbound traffic would be provided at Williams Ranch Road. No other acceleration or deceleration lanes are proposed in the Mountain Springs area. Motorists entering private driveways on the right side of SR 160 would need to slow down in the shoulder to reach a comfortable speed before turning.

At each end of Mountain Springs, a U-turn movement would be provided to allow for greater access to Mountain Springs. West of Mountain Springs, the U-turn would be provided for westbound traffic roughly 0.5 mile west of the Williams Ranch Road intersection. A left-turn pocket would be provided for westbound traffic making a U-turn. East of Mountain Springs the U-turn would be located 0.35 mile west of Mount Potosi Canyon Road. A left-turn pocket would be provided for eastbound traffic making a U-turn. A high-T intersection would be located at the SR 160 intersection with Mount Potosi Canyon Road. A 2-foot-wide raised island would be provided to delineate a left-turn pocket, provide a refuge area for vehicles turning left from westbound SR 160 to Mount Potosi Canyon Road, and provide an acceleration area for vehicles turning left from Mount Potosi Canyon Road to westbound SR 160 to merge with through traffic.

Right-of-way acquisition may be required at two locations. West of Williams Ranch Road, approximately 0.4 acre may be acquired from a private property on the north side of SR 160. Additionally, approximately 0.3 acre may be acquired from private property along the south side of SR 160, opposite the fire station. The right-of-way impacts could be avoided with the construction of retaining walls. The decision whether to construct retaining walls will take place during the final design.

Because of the posted speed and raised median islands located at the high-T intersections along SR 160, NDOT would install lighting to ensure safety in accordance with national lighting design recommendations\(^1\) at these intersections. Along with the high-T intersections, lighting would be installed near the Mountain Springs Fire Station, the U-turn intersections at each end of the community, the Mount Potosi Canyon Road intersection, and the Avery Street intersection. Lighting would be standard NDOT Type 7 light poles (32 feet high) with light-emitting diode (LED) fixtures. The standard NDOT LED fixtures have back-light-uplight-glare ratings that are equivalent to a full cutoff classification to help mitigate sky glow, light trespass, and glare. The lighting will be installed entirely within NDOT right-of-way, avoiding areas of environmental concern. To mitigate concerns about the introduction of lighting along SR 160, the poles, mast arms, and fixture casings could be painted in a color that blends in with the surrounding environment. As noted, lights would be installed only at conflict points, not throughout the entire length of the project.

In addition to roadway lighting, intelligent transportation system (ITS) infrastructure would be installed to enhance NDOT Maintenance Decision Support System and to assist the Clark County Freeway and Arterial System of Transportation (FAST) network with traffic incident and congestion management monitoring. The infrastructure would include conduit, fiber optic cable, standard ITS pull boxes, and flow detectors and closed-circuit cameras on

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\(^1\) American National Standards Institute (ANSI) RP-8-00: Roadway Lighting (Reaffirmed 2005) and AASHTO Roadway Lighting Design Guide
standard NDOT ITS poles (standard pole sizes are 30, 50, or 80 feet). The ITS infrastructure would be installed entirely within NDOT right-of-way, avoiding areas of environmental concern. A pole would be placed near the Mountain Springs Summit and four to five shorter poles would be placed between Mountain Springs and SR 159. Final decisions regarding lighting and ITS components will be made during the final design.

The design speeds in Table 2-1 were recommended within the corridor, based on the Preferred Alternative’s typical section. NDOT Road Design Guidelines and national standards recommend a posted speed limit 10 mph slower than the design speed. The posted speed limit east of Mountain Springs would be 65 mph. As SR 160 approaches Mountain Springs from the east, the posted speed limit would be reduced to 55 mph as it transitions to 45 mph through the heart of Mountain Springs. West of Williams Ranch Road, the posted speed would return to 55 mph and then 65 mph, as SR 160 transitions to a 4-lane divided roadway west of this study area. Under the Preferred Alternative, the level of service for each section of the project area in both the AM and PM peak periods would be LOS A. For a more detailed discussion of the Preferred Alternative traffic operations along SR 160, refer to the Traffic Operations Analysis Future Improvements technical memorandum on the CD at the back of this document.

<table>
<thead>
<tr>
<th>Location</th>
<th>Design Speed of Proposed Alignment (mph)</th>
<th>Posted Speed on Proposed Alignment per NDOT Standards (mph)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR 159 intersection to east of Mount Potosi Canyon Road</td>
<td>75 MPH</td>
<td>65 MPH</td>
</tr>
<tr>
<td>Through Mountain Springs (Mount Potosi Canyon Road intersection to west of Williams Ranch Road)</td>
<td>55 MPH</td>
<td>45 MPH</td>
</tr>
<tr>
<td>West of Mountain Springs to end of project (then further extend to Pahrump)</td>
<td>75 MPH</td>
<td>65 MPH</td>
</tr>
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</table>

*Note: Short 65 MPH Design Speed/55 MPH Posted Speed sections are included between design speed/posted speed transitions*
Exhibit 2-1
Milepost Locations

LEGEND

- Milepost
- Trailhead
- SR 160 Study Limits

Scale in Miles

0 1 2

SR 160 Environmental Assessment
SR 160 Corridor Study - SR 159 to Mountain Springs
Exhibit 2-2
Preferred Alternative Alignment East of Mount Potosi Canyon Road

See map below

NOTE: All information presented is preliminary subject to revision.
See map below

"high-T" intersection
right-in/right-out access to accommodate school bus movement
median opening at fire station
north frontage road
"high-T" intersection
south frontage road

"high-T" intersection or no intersection*

Benedict Road
Pinion Drive
Rosary Road

* To be determined during final design
NOTE: All information presented is preliminary subject to revision.

Exhibit 2-3
Preferred Alternative Alignment West of Mount Potosi Canyon Road
Exhibit 2-4
Potential Construction Phasing

Exhibit 2-4
Potential Construction Phasing

Scale in Miles

LEGEND
- Milepost
- Trailhead
- SR 160 Study Limits
- Phase 1 Construction
- Phase 2 Construction

SR 160 Environmental Assessment
SR 160 Corridor Study - SR 159 to Mountain Springs
NOTE: All information presented is preliminary subject to revision.
Preferred Alternative – Mountain Springs Area

EXHIBIT 2-6

NOTE: All information presented is preliminary subject to revision.

LEGEND
- Existing Right-of-Way
- Proposed Edge of Pavement
- Vegetative Buffer
- Milepost
- New Mailbox Location

“high-T” intersection

Mountain Springs Saloon

Williams Ranch Road

Benedict Road

Pinion Drive

Rosary Road

Mountain Springs Fire Station

“high-T” intersection

north frontage road

new mailbox location

right-in/right-out access to accommodate school bus movement

new mailbox location

south frontage road
3. **Affected Environment, Environmental Impacts, and Mitigation**

This section provides background information on regional planning, the built environment, socioeconomic characteristics, archaeological and historical resources, public use land, and the natural environment in the SR 160 project area. The information establishes the context for the proposed improvements and their potential impacts. This section also identifies the beneficial and adverse social, economic, and environmental effects the project may have, and conceptual measures to minimize and mitigate adverse effects. When applicable, this section describes the impact construction activities may have on resources. The No-Build Alternative and Preferred Alternative are addressed within each topic.

Throughout this section there is reference to the various mile posts (MP) along the project corridor to assist in orienting the reader as to where resources are located. Refer to Exhibit 2-1 for a map of the SR 160 corridor showing where each MP is located.

The CD at the back of this document contains technical memorandums outlining impacts on several environmental resources. The information provided in the Wildlife and Public Recreation sections relied heavily on information from *Final Report Landscape Analysis; Chapter 1: Characterization of the Spring Mountains National Recreation Area* (ENTRIX, Inc., August 2008).

### 3.1 Geographic Setting

The SR 160 project is located in Clark County in southwestern Nevada about 15 miles southwest of downtown Las Vegas and 30 miles southeast of Pahrump (Exhibit 3-1). The project area, which extends about 11 miles from the SR 159 intersection (MP 11) to a point 1.24 miles west of Mountain Springs Summit (MP 22), is bounded for almost the entire length by the Red Rock Canyon National Conservation Area (NCA) managed by the Bureau of Land Management (BLM) and the Spring Mountains National Recreation Area (NRA) managed by the U.S. Forest Service (USFS). The project is located within the Basin and Range Physiographic Province, which consists of isolated ranges separated by desert plains. The eastern end of the project begins in relatively level terrain and moves west through and near a series of alluvial fans, washes, small hills, and ridges. Near MP 18.0, the project begins transitioning into incised canyons with steep slopes. These canyons and slopes are part of the same sandstone-dominated formations that contain vivid colors for which the Red Rock Canyon NCA is named. The project continues west through a canyon and crosses over the top of the southern end of the Spring Mountains at Mountain Springs Summit. The project passes through elevations ranging from 3,200 feet at the eastern end of the project to 5,500 feet at Mountain Springs Summit. From the summit, it continues downhill through the community of Mountain Springs to the western terminus.

### 3.2 Areas of No Impact

All relevant environmental and social issues were considered during scoping and environmental analysis. In compliance with 40 CFR 1501.7 a(3), the following resources were determined to be unaffected by the SR 160 project:

- Wetlands
- Farmland (Prime or Unique)
- Rangeland
• Hazardous Materials
• Energy Resources and Minerals

It was determined that the SR 160 project would have no impact on two additional resources, Noise and Air Quality. However, since the potential impact of these two resources is not limited to the SR 160 right-of-way, a more detailed evaluation of these resources took place. These evaluations are summarized in this section.

3.2.1 Wetlands
During the biological survey for the project, four potential wetlands were identified in or immediately adjacent to the SR 160 right-of-way (Exhibit 3-2). One wetland just outside the right-of-way is a 1,200-foot-long drainage feature extending from the Mountain Springs Fire Station to the Williams Ranch Road intersection. The other three wetlands are springs/seeps of less than 0.1 acre located at the edge of the right-of-way in Mountain Springs. This resource was not considered for detailed evaluation because the Preferred Alternative would not affect the wetlands.

3.2.2 Farmland (Prime or Unique)
The farmland resource was not considered for detailed evaluation because no farmlands (prime or unique) occur within or near the project area.

3.2.3 Rangeland
Because grazing is not permitted in the Spring Mountains NRA or the Red Rock Canyon NCA, there is no rangeland or farmland adjacent to SR 160. The rangeland resource was not considered for detailed evaluation because the Preferred Alternative will not affect rangeland.

3.2.4 Hazardous Materials
Hazardous materials were not considered for detailed evaluation because no recognized hazardous materials locations were identified within the SR 160 right-of-way. When potential right-of-way acquisitions are formalized, the specific property required will be assessed as needed according to the current American Society for Testing and Materials (ASTM) Standard E 1527. Construction activities will adhere to local, state, and federal ordinances, laws, and regulations.

3.2.5 Energy Resources and Minerals
The Spring Mountains historically were prospected and mined for lead, zinc, and gold. The Spring Mountains National Recreation Area Act withdrew almost all the Spring Mountains NRA from mining under the mineral leasing and geothermal leasing laws (USFS, 1996). The Blue Diamond Gypsum Plant on SR 159, about 1.5 miles northwest of the SR 159/SR 160 intersection, is the only mining operation near the project area. In May 2013, Nevada State Senate Bill 159 was approved (consult the CD at the back of the document). The bill outlines the Legislature's support for a land exchange of the gypsum mine property for federal land, near the Red Rock Canyon National Conservation Area. If this is achieved, the land would be managed as part of the Red Rock Canyon NCA, preventing commercial and suburban residential development on the property. The bill has no impact on the SR 160 project. This resource was not considered for detailed evaluation because the Preferred Alternative will not convert any lands now used for energy resources, mineral extraction, or mineral processing to transportation right-of-way.

3.2.6 Noise
Affected Environment
The criteria for evaluating traffic noise impacts are contained in Title 23 CFR, Part 772—Procedures for Abatement of Highway Traffic Noise and Construction Noise (23 CFR 772, 2010), the FHWA Highway Traffic Noise: Analysis and Abatement Guidance, Document Number FHWA-HEP-10-025 (2011), and NDOT’s Traffic and Construction Noise Analysis and Abatement Policy (2012). The traffic noise analysis was conducted to evaluate traffic noise conditions that could result from expanding the capacity of SR 160. The traffic noise analysis compares existing conditions and predicted design year (2032) traffic noise levels with policy criteria to determine whether a traffic noise abatement measure should be considered. In the project area, SR160 passes through the unincorporated
community of Mountain Springs, a small rural community with fewer than 100 residents. There are no other populated residential areas near the project area, with the exception of scattered residences on the east end of the project area. Additional information is presented in the Traffic Noise Analysis technical memorandum located on the CD at the back of the document.

Noise Impacts

No-Build Alternative. Existing noise levels do not exceed regulatory or policy criteria. Traffic noise levels for the No-Build Alternative in 2032 were not calculated; however the predicted future levels for the Preferred Alternative clearly indicate that a traffic noise impact would not be realized with the No-Build Alternative.

Preferred Alternative. The Preferred Alternative includes the roadway features described in Section 2.6. Future conditions were modeled using the roadway conditions and traffic volumes for the Preferred Alternative for 2032. None of the predicted future traffic noise levels for the project area satisfy policy criteria. Consequently, a traffic noise impact will not be realized.

Mitigation Measures

Because traffic noise impacts were not realized, a traffic noise abatement measure need not be considered.

3.2.7 Air Quality

Affected Environment

The proposed project is located in Clark County and in Hydrographic Area 212 (HA 212) and HA 163. USEPA designates HA 212 as maintenance for carbon monoxide (CO), nonattainment for particulate matter (PM10) and nonattainment for 8-hour ozone (1997 standard) (USEPA, 2012). The area is either in attainment or unclassifiable status for all other criteria pollutants.

The proposed project area passes through the unincorporated community of Mountain Springs. Mountain Springs is a small rural community with fewer than 100 residents. There are no other populated residential areas near the project area. Additional information is presented in the Air Quality Analysis technical memorandum located on the CD at the back of the document.

Air Quality Impacts

Regional Conformity. Conformity requirements apply only in nonattainment and maintenance areas for the National Ambient Air Quality Standards (NAAQS). SR 160 is within HA 212, a federal nonattainment area for ozone (1997 standard) and PM10, and in a federal maintenance area for CO and must demonstrate regional conformity for these pollutants.

For transportation projects, regional conformity is satisfied by inclusion of the transportation project in a conforming regional transportation plan and Transportation Improvement Program (TIP). The proposed project is listed in the RTC’s financially constrained Regional Transportation Plan 2013–2035. The project is also included as Project Number 4018 in RTC’s Fiscal Year 2013–2016 Transportation Improvement Program. The TIP was determined to conform by FHWA on March 20, 2013. The project is found in the FY 2014–2017 Statewide Transportation Improvement Program (STIP), page Statewide 6. Inclusion in the conforming RTP and TIP demonstrates the project was evaluated for regional impacts, meets the planning and regional requirements for demonstration of federal conformity, and is consistent with local air quality planning efforts.

Project Level Conformity. The project is included in the financially constrained RTP, TIP and STIP; and, as discussed below, it would not cause localized CO or PM10 hotspot impacts. Therefore, the proposed project meets the project-level conformity requirements.

Localized Carbon Monoxide Hot Spot

The Clark County Department of Air Quality (CCDAQ) modeled several intersections in downtown Las Vegas as part of its CO attainment demonstration (CCDAQEM, 2008). The intent was to screen the worst-case intersections
in HA 212 to demonstrate that there would be no future violations of either the 1-hour or 8-hour NAAQS for CO. One-hour CO concentrations were not modeled because there are no violations of 1-hour CO concentrations in HA 212. The results indicate that, near the worst-case signalized intersections (Charleston/Eastern, Fremont/Eastern and Fremont/Charleston) there would be no future violations of the 8-hour NAAQS for CO. The CCDAQ identified these intersections in the State Implementation Plan (SIP) as the worst in HA 212 in terms of level of service and high traffic volumes. Other intersections are not expected to cause violations of the CO NAAQS.

The two intersections (Avery Street/SR 160 and SR 159/SR 160) in the project area will operate at level of service A, and with peak hour traffic volumes less than 1,250 in 2035. Vehicle volumes at these two non-signalized intersections are significantly lower than the worst-case intersections analyzed in Las Vegas. The expected morning and afternoon peak hour traffic volume and level of service at the intersections would be the same in 2015 and 2035 for both the No-Build and Preferred alternatives. Therefore, the proposed project would not increase the localized CO concentrations when compared to the No-Build Alternative. The project is not expected to cause or contribute to any new localized CO violations or increase the frequency or severity of any existing violations.

Rather, the proposed project would increase the overall vehicle speed when compared to No-Build Alternative. The reduced delays and improved traffic flow would reduce the CO emissions from SR 160, thus providing air quality benefits.

**Localized PM$_{10}$ Hotspot**

Evaluations of the United States Environmental Protection Agency (USEPA) criteria to determine if the project is of air quality concern are discussed in the *Air Quality Analysis* technical memorandum on the CD at the back of the document. The results determined the project is not expected to be a project of air quality concern. The project will be designed to improve traffic conditions. Vehicle speed is expected to increase on all segments on SR 160 within the project area, compared to the No-Build Alternative. As a result, the proposed project would reduce the PM$_{10}$ emissions from vehicle exhaust along SR 160 under the Preferred Alternative because of improved traffic conditions, resulting in positive impacts on air quality.

Although the proposed project would be located in a PM$_{10}$ nonattainment area, it would not be a project of concern based on the FHWA/USEPA air quality criteria. According to Figures 6-1 and 6-2 of the CCDAQ PM$_{10}$ SIP (CCDAQ, 2012), PM$_{10}$ emissions from on-road vehicle emissions contribute only 0.44 percent to the total PM$_{10}$ emissions in 2008 and 0.57 percent in 2023. Therefore, the project would not be expected to cause or contribute to any new localized or PM$_{10}$ violations or increase the frequency or severity of any existing violations. As such, the project achieves the conformity requirements in 40 CFR 93.123(b). Further quantitative dispersion modeling analysis is not required.

**Mobile Source Air Toxics (MSAT)**

The project will not increase vehicle volume on SR 160 or vehicle miles traveled in the project area. The AADT is much less than the value of 150,000 AADT in the FHWA guidance for projects with higher potential for MSAT impacts. As such, this project will not result in changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause an increase in MSAT impacts of the project from that of the No-Build Alternative. This project has been determined to generate minimal air quality impacts for Clean Air Act Amendments criteria pollutants and has not been linked with any special MSAT concerns. The project would not contribute to an increase in MSAT emissions and will have no meaningful potential MSAT effects.

**Greenhouse Gas and Climate Change**

The project does not incorporate an analysis of the greenhouse gas (GHG) emissions or climate change effects of the Preferred Alternative because the potential change in GHG emissions is very small in the context of the affected environment. Because of the insignificance of the GHG impacts, those impacts will not be meaningful to a decision on the environmentally preferable alternative or to a choice among alternatives.
Construction Air Quality

Construction is not expected to last longer than 5 years. Therefore, a project-level conformity analysis is not required, and construction emissions do not need to be accounted for in a hotspot analysis per 40 CFR 93.123(c)(5). Construction can result in temporary and short-term increases in dust and equipment-related particulate emissions. Potential air quality impacts would be temporary and localized.

Mitigation Measures

The analysis shows the project meets the transportation conformity requirements, and that impacts directly associated with project operation would not have a significant adverse effect on air quality. No air quality mitigation is required.

Construction contractors will be required to obtain necessary permits that would include a dust control permit for construction activities. Reductions in pollutant emissions from diesel engines can be obtained through such strategies as reducing idling, properly maintaining equipment, and retrofitting diesel engines with diesel emission control devices. Impacts associated with fugitive dust generated by construction would be mitigated by standard dust control measures.

3.3 Land Use and Land Use Planning

3.3.1 Affected Environment

Land Use Planning

Land use in the study area is managed by three entities: BLM, USFS, and Clark County.

The BLM’s Red Rock Canyon National Conservation Area Resource Management Plan (May 2005) guides land use planning decisions within the NCA. With the purpose of the NCA being “to conserve, protect and enhance for the benefit and enjoyment of present and future generations the unique and nationally important geologic, archeological, ecological, cultural, scenic, scientific, wildlife, riparian, wilderness, endangered species and recreational resources,” it would be expected that land use along the study corridor (and throughout the NCA) will remain essentially unchanged. The designation of the Rainbow Mountain Wilderness Area, which is adjacent to the western part of the study corridor, is evidence of the BLM’s desire to preserve the land use of the NCA in its present state.

It should be noted that BLM’s land use policies and decisions on its holdings outside the NCA may be different than within the NCA. Because BLM lands can be made available for development under the 1988 Southern Nevada Public Land Management Act, new development would be possible in the first mile of the project, which is outside the NCA boundary. It is not expected, however, that proposed improvements to SR 160 would result in a demand for development on BLM land at the eastern end of the study area.

Under the USFS General Management Plan for the Spring Mountain National Recreation Area: an Amendment to the Land and Resource Management Plan, Toiyabe National Forest, which was written to reflect the goals of the Spring Mountains NRA Act, the NRA is managed to achieve six general purposes that provide themes for the organization of more specific goals, objectives, standards, and guidelines (USFS, 1996):

1. Conservation of scenic, scientific, historic, cultural, and other values contributing to the public enjoyment
2. Conservation of fish and wildlife populations and habitat
3. Protection of watersheds, and maintenance of free-flowing streams and the quality of ground and surface waters
4. Public outdoor recreation benefits
5. Wilderness areas as designated by Congress
6. Management and use of natural resources in a manner compatible with the purposes for which the Spring Mountains NRA was established

As noted in these six general purposes, USFS’s land use focus for the Spring Mountains NRA, like the Red Rock Canyon NCA, is to preserve existing open space. Beyond the items listed above, proof of the USFS desire to maintain open space is seen in the designation of areas within the NRA. Nearly 50 percent of the Spring Mountains NRA, some 138,000 acres, is designated as Wilderness or a Wilderness Study Area. The Rainbow Mountain Wilderness Area in the NCA is also part of the Spring Mountains NRA.

Clark County has planning authority for the small areas of nonfederal land in the study area, and has adopted zoning, subdivision, and land use plans for all of its unincorporated areas (comprehensive planning). Comprehensive planning takes place through the county’s comprehensive plan. The *Clark County Comprehensive Plan (2014)* is a long-term, general policy plan for the physical development of unincorporated Clark County, satisfying the requirements of Nevada Revised Statute (NRS) 278.160.

The *Northwest Clark County Land Use Plan (June 2013)* is a policy plan for the subregion that includes the SR 160 study area. The plan cites safety concerns and the number of fatal accidents on SR 160, often compounded by the mountainous terrain near Mountain Springs. Many of the accidents occurred when drivers attempted to pass in no passing zones. The problems are compounded by snow cover in winter. The plan noted that residents are also concerned about the increase in traffic on SR 160.

According to the plan, the main land use concerns within the project area occur in Mountain Springs, where the primary issue is maintaining the rural alpine character of the community. A goal of the plan is to preserve and enhance community character in Mountain Springs. Seventy percent of the Northwest Clark County Planning Area is made up of public recreation and conservation areas, which limits development from occurring outside properties already privately owned.

**Existing Land Use**

At the eastern terminus of the project, there is a cluster of rural single-family residences and the Blue Diamond Travel Center (gas station/convenience store) located at the SR 160/SR 159 intersection. Beginning about 1 mile west of the SR 159 intersection and extending to Mountain Springs, the land adjacent to SR 160 is owned by the BLM and USFS, and is undeveloped except for two trailhead parking areas that have been developed to accommodate hikers, mountain bikers, and horseback riders. Near the western terminus, the community of Mountain Springs is located north and south of SR 160. Mountain Springs consists almost entirely of residential development with the exception of the Mountain Springs Saloon (bar/restaurant), an NDOT maintenance facility, and a Clark County Fire Department station. Exhibit 3-3 depicts the existing and proposed land use in Mountain Springs. West of Mountain Springs, the land use in the project area again becomes undeveloped federally owned land.

*Entrance to the Spring Mountain NRA along SR 160.*

*Mountain Springs Fire Station along SR 160.*
3.3.2 Land Use Impacts

No-Build Alternative

The No-Build Alternative would have no land use impacts.

Preferred Alternative

The Preferred Alternative may require minimal new right-of-way acquisition near Mountain Springs. West of Williams Ranch Road, approximately 0.4 acre may be acquired from a private property on the north side of SR 160. Additionally, approximately 0.3 acre may be acquired from private property along the south side of SR 160, opposite the fire station. These right-of-way impacts could be avoided with the construction of retaining walls. As the design progresses, NDOT may decide to use retaining walls to keep all proposed improvements within existing right-of-way. Given the minimal potential right-of-way acquisition for the project and the fact that most of the study corridor is adjacent to federal land with a focus on preserving open space, the project will not affect planned land use patterns in the study area. It should be noted that this project is the last in a series of SR 160 projects in Clark County that have widened the highway between I-15 in Las Vegas and Pahrump (Exhibit 1-2). If increasing capacity alone had the potential to change planned land use patterns in the project area, the change would have already been visible.

3.3.3 Mitigation Measures

No land use mitigation is required.

3.4 Socioeconomic Characteristics

3.4.1 Affected Environment

Demographics

The demographic characteristics of the study area are derived from 2010 U.S. Census data. Exhibit 3-4 shows the limits of the demographic study area and associated census blocks for the project. Over 93 percent of the total population in the demographic study area is White/Caucasian (Table 3-1). Clark County and the State of Nevada have a significantly lower percentage of White/Caucasian population at 48 and 54 percent, respectively.

<table>
<thead>
<tr>
<th>TABLE 3-1 Population by Race</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Total Population</td>
</tr>
<tr>
<td>White/Caucasian</td>
</tr>
<tr>
<td>African American</td>
</tr>
<tr>
<td>Asian</td>
</tr>
<tr>
<td>American Indian</td>
</tr>
<tr>
<td>Hawaiian/Pacific Islander</td>
</tr>
<tr>
<td>Other</td>
</tr>
<tr>
<td>Two or More Races</td>
</tr>
<tr>
<td>Hispanic</td>
</tr>
<tr>
<td>Total Minority Population</td>
</tr>
</tbody>
</table>

Source: U.S. Bureau of Census, 2010; Table P9 Hispanic or Latino, and Not Hispanic or Latino: Total Population By Race.
Census blocks are the smallest spatial delineation available for gathering demographic information. Because the SR 160 study area and surrounding area are sparsely populated, the census blocks that include the project area are very large and include portions of Blue Diamond and exurban developments around Las Vegas. Based on 2010 Census data, 338 people reside in the census blocks adjacent to SR 160. Mountain Springs is not recognized as a Census Designated Place, and therefore has no official established population count. According to Clark County Department of Comprehensive Planning population estimates listed in the Northwest Clark County Land Use Plan, Mountain Springs had a population of 98 people in July 2012, living in 45 single-family residences. The population of Mountain Springs varied between 83 and 112 residents between 2001 and 2012. The study team estimates that of the 338 individuals accounted for in the study area demographics analysis, roughly 125 actually live within the SR 160 study area.1

### Income

Income data are collected by the American Community Survey (ACS). The ACS tracks local economic conditions annually rather than on a decennial basis like the census. The income data in Table 3-2 are an estimate that used 5 years of ACS data. Five-year estimates are best when analyzing very small populations because it uses the largest available sample size within the ACS. The income overview study area includes census tracts, 58.27 and 75 (Exhibit 3-5). Census tracts are the smallest spatial delineation available for gathering income data, because of privacy issues. Census tract 75 covers all the area north of the SR 160 project limits, and an area south of the roadway on the eastern end of the project area. The tract extends 33 miles to the north through Spring Mountain NRA and Red Rock Canyon NCA and includes the communities of Mountain Springs and part of Blue Diamond, which is where most of the population of the tract is located. Tract 58.27 covers most of the area south of SR 160 and extends 26 miles southwest to the California border. The tract includes several communities, most notably part of Sandy Valley, which straddles the California and Nevada border.

Table 3-2 compares the median income and percentage of the population below the poverty level in the study area to Clark County and the State of Nevada. Based on 2011 ACS data, the median family income in the project area was higher than Clark County and the State of Nevada.

The U.S. Department of Health and Human Services (HHS) annually publishes poverty guidelines to determine financial eligibility for certain programs. The HHS guidelines are a simplification of the U.S. Census Bureau’s poverty thresholds for use for administrative purposes; for instance, determining financial eligibility for certain

### TABLE 3-2 Income Characteristics

<table>
<thead>
<tr>
<th>Geographic Area</th>
<th>Median Family Income</th>
<th>Percent of Population Below Poverty Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study area</td>
<td>$98,810a / $85,134b</td>
<td>1.5%b / 11.5%a</td>
</tr>
<tr>
<td>Clark County</td>
<td>$64,074</td>
<td>12.9%</td>
</tr>
<tr>
<td>Nevada</td>
<td>$64,353</td>
<td>12.9%</td>
</tr>
</tbody>
</table>

Source: 2007-2011 American Community Survey 5-Year Estimates; Table DP03 Selected Economic Characteristics

1 Data are from census tract 75.

2 Data are from census tract 58.27.
federal programs. According to the HHS guideline, in 2014 a household containing four persons was considered to be living in poverty if the total income of the family/household was less than $23,850.

The Census Bureau’s poverty statistics represent the number of people below the Census Bureau poverty thresholds. Neither the Census Bureau nor the HHS prepares tabulations of the number of people below the HHS poverty guidelines, which are a simplified version of the poverty thresholds used for program eligibility purposes. The best approximation for the number of people below the HHS poverty guidelines in a particular area would be the number of persons below the Census Bureau poverty thresholds in that area. As noted in Table 3-2, the percentage of residents in the study area living in poverty is 1.5 or 11.5 percent, both lower than Clark County and the State of Nevada percentages.

**Employment**

Many residents within the study area commute to jobs in Pahrump or Las Vegas due to the lack of commercial activity in the corridor. The median commute-to-work times in the study area are 33 or 46 minutes, depending on which census tract the commuter lives in (ACS, 2010). The SR 160 corridor is also an important route for people living in Pahrump or other parts of Nye County who commute to the Las Vegas Valley for work. According to 2008 American Community Survey (ACS) 3-year estimates, roughly 23 percent of the employed workforce living in Nye County commutes to Clark County for work. This is similar to 2000 Census data, which noted that 20 percent of the workforce living in Nye County commuted to Clark County for employment.

**Development**

As noted, the only development in the study area is found near the SR 159 intersection at the eastern project terminus and in Mountain Springs near the western terminus. Near the SR 159 intersection there are a few residences immediately south of the intersection and several more on Avery Street west of the intersection. The community of Blue Diamond is about 3 miles northwest of the SR 160/SR 159 intersection off SR 159. The Blue Diamond Travel Center gas station/convenience store at the SR 159 intersection is the only commercial development located along SR 160 in the eastern end of the project. Mountain Springs is surrounded by the Spring Mountains NRA, and is governed by the Board of County Commissioners of Clark County. The Mountain Springs Citizens Advisory Council advises the Clark County Board of County Commissioners on policy issues of local interest, such as transportation and development. Residential development in Mountain Springs is located on both sides of SR 160. There is also a fire station operated by Clark County, an NDOT Maintenance facility, and the Mountain Springs Saloon (bar/restaurant).

There are no heath care facilities, schools, churches, or other public facilities other than the fire station in Mountain Springs in the study area.
3.4.2 Socioeconomic Impacts
The No-Build Alternative would have no impacts to socioeconomic resources in the project area.

Community Changes/Cohesion
The impacts of highway expansion on neighborhoods and community cohesion relate to changes in the physical, social, and community services settings that promote a sense of community. Connectivity and accessibility are key aspects of neighborhood cohesion.

The Preferred Alternative through Mountain Springs would increase the width of SR 160 and revise access; however, it would not preclude Mountain Springs’ residents north and south of SR 160 from crossing the highway. In addition, it will not displace any residences. It may, however, acquire approximately 0.4 acre from a private property on the north side of SR 160 west of Williams Ranch Road and approximately 0.3 acre from private property along the south side of SR 160, opposite the fire station. There are no community services in Mountain Springs other than the fire station.

In the area of the SR 159 intersection, the Preferred Alternative would widen SR 160. It would also make the Avery Drive intersection a right-in/right-out movement. Doing so would eliminate the existing left turn onto Avery Drive. This access change is supported by Avery Drive residents because it eliminates through traffic using that road as a short cut to SR 159.

Given the lack of residential relocations or impacts to community facilities in Mountain Springs and the residential development surrounding the SR 159 and SR 160 intersection, and the ability of residents at both locations to access neighboring residences, the Preferred Alternative would not adversely affect community cohesion. By addressing transportation deficiencies that contribute to the existing crash problem in the study area and future congestion problem, the Preferred Alternative will facilitate a safer, more efficient connection between study area residents and community facilities and services in Las Vegas and Pahrump.

Effect on Community Facilities and Services
As noted, other than the fire station in Mountain Springs, there are no community facilities and services in the study area. Schools, parks, health care providers, and similar facilities and services are located in the adjacent communities of Pahrump, Blue Diamond, and Las Vegas. The potential impacts of the project to recreational uses on BLM and USFS property are discussed in Section 3.18.

3.4.3 Mitigation Measures
A traffic plan would be created to maintain access during construction to Mountain Springs and the residential development near the eastern project terminus. NDOT would coordinate with project-area residents about the construction schedule. Under the Preferred Alternative, the mailboxes located near the fire station in Mountain Springs and on the north side of SR 160, roughly 250 feet east of Pinion Drive, would be moved to the Benedict Road/Pinion Drive frontage road for those living on the north side of SR 160 and to the south frontage road for those living south of SR 160. A small pullout would be located along the frontage roads for residents to pick up their mail and review the community bulletin board without disrupting traffic. School bus stops would be located in the same locations, preventing children from having to cross the highway to reach the bus stop.

If an estimated 0.7 acre of new right-of-way is required, the NDOT Right-of-Way Division, under the guidance of the Relocation Assistance and Real Property Acquisition Policy Act of 1970 (Uniform Act), will negotiate with the property owners directly affected, ensuring that fair market value is received for the required right-of-way.
3.5 Environmental Justice

3.5.1 Affected Environment

Introduction
The key regulations and policy directives behind environmental justice assessment requirements are Title VI of the Civil Rights Act of 1964 and Executive Order 12898 issued by President Clinton in 1994.

Title VI of the Civil Rights Act of 1964 \(^2\) prohibits intentional discrimination, as well as disparate impact discrimination, that results when a facially neutral policy has disparate impacts on protected population groups. To clarify and amplify the nondiscrimination requirements of Title VI, President Clinton issued Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.”

Presidential Executive Order on Environmental Justice 12898 requires federal agencies to address the impacts of their programs with respect to environmental justice. It states, to the extent practicable and permitted by law, that neither minority nor low-income populations may receive disproportionately high or adverse effects \(^3\) as a result of a proposed project. The order requires that representatives of low-income or minority populations that could be affected by the project be given the opportunity to be included in the impact assessment and public involvement process.

Environmental Justice populations are communities that meet at least one of the following criteria:

- A minority population should be identified where the minority population of the affected area exceeds 50 percent of the total population of the community.
- The low-income or minority population is meaningful if greater that the City or County average \(^4\).

FHWA guidance, “Addressing Environmental Justice in Environmental Assessments/Environmental Impact Statements,” outlines the elements and steps to be followed when preparing an environmental document and requires the following steps:

- Identify existing populations.
- Identify coordination, access to information, and participation.
- Identify disproportionately high and adverse effects.

If the high and adverse impacts are found to be borne disproportionately by low-income and minority populations, an analysis must examine mitigation measures, offsetting benefits, and impacts of other system elements in accordance with FHWA Order 6640.23A, FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (2012).

Identification of Minority and Low-Income Populations

According to 2010 Census figures, minorities made up 6.8 percent of the population within the project area, with

\(^2\) Title VI states that “[n]o person in the United States shall, on the ground of race, color, or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.”

\(^3\) Disproportionately high and adverse effect on low-income and minority populations is defined in FHWA Order 6640.23A as (1) is predominately borne by a minority population and/or a low-income population; or (2) will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population. Adverse effects are defined in FHWA Order 6640.23A as the totality of significant individual or cumulative human health or environmental effects, including interrelated social and economic effects, which may include, but are not limited to: bodily impairment, infirmity, illness, or death; air, noise, and water pollution and soil contamination; destruction or disruption of man-made or natural resources; destruction or diminution of aesthetic values; destruction or disruption of community cohesion or a community’s economic vitality; destruction or disruption of the availability of public and private facilities and services; vibration; adverse employment effects; displacement of persons, businesses, farms, or nonprofit organizations; increased traffic congestion, isolation, exclusion, or separation of minority or low-income individuals within a given community or from the broader community; and the denial of, reduction in, or significant delay in the receipt of benefits of FHWA programs, policies, or activities.

\(^4\) Council on Environmental Quality, Environmental Justice Guidance under the National Environmental Policy Act, December 10, 1997, p. 25; it has become generally accepted in environmental planning practice for federal projects that “meaningful greater” is 10 percent or greater than the jurisdiction against which the social and economic data is compared.
the Hispanic population accounting for 5.6 percent of the population. Hispanics are also the largest minority population in Clark County at 29.1 percent and in Nevada at 26.5 percent (Table 3-1).

In 2014, a household/family consisting of four persons was considered to be living in poverty if the total income of the household/family was less than $23,850 (Health and Human Services). Following the Office of Management and Budget (OMB) Statistical Policy Directive 14, the Census Bureau uses a set of income thresholds that vary by family size and composition to determine who is in poverty. If the total income of a family is less than the threshold for the family, then individuals in that family are considered to be in poverty. The official poverty thresholds do not vary geographically, but they are updated for inflation using the Consumer Price Index. Table 3-2 compares the percentages of families in poverty within the study area to Clark County and the State of Nevada. The population in poverty, according to the 2007-2011 American Community Survey 5-Year Estimates, is 1.5 percent in census tract 58.27, which covers Mountain Springs, and 11.5 percent in census tract 75. This suggests that, although the two tracts have similar median household incomes, there is a wider range of incomes in census tract 75. Clark County and Nevada poverty levels are greater than the levels in the project area.

### Coordination, Access to Information, and Participation

Public information meetings were conducted in the project area in May 2010 and March 2012. A public hearing is scheduled to occur in early 2014. The project team met with the Mountain Springs Citizens Advisory Council in August 2012 and April 2013. Additional information about these meetings is located in Section 4 as well as a description documenting NDOT’s coordination efforts with Native American tribes.

#### 3.5.2 Impacts

Because the project may only acquire up to an estimated 0.7 acre of new right-of-way, has no displacements, and avoids community cohesion impacts, no impacts to environmental justice populations are expected. No minority or low income populations have been identified that would be adversely affected by the proposed project as determined above. Therefore in accordance with the provisions of E.O. 12898 and 6640.23A, no further Environmental Justice analysis is required.

### 3.6 Visual Resources

#### 3.6.1 Visual Resource Background

A visual impact assessment (VIA) was conducted to determine if potential visual impacts associated with the project are consistent with the visual resource objectives of land and resource management plans that pertain to federal lands the project passes through and to propose mitigation measures to mitigate adverse visual impacts associated with the project. The Visual Impact Assessment technical memorandum is provided on a CD at the back of this document.

#### Visual Impact Assessment Guidance

The process used to determine impacts to visual resources follows the guidelines outlined in Visual Impact Assessment for Highway Projects (FHWA, 1981). The FHWA visual assessment methodology requires that visual impacts related to a proposed project be determined by assessing changes to the landscape as seen from a highway project (to determine how people travelling on the proposed project might be affected), and assessing views of the project (to determine how people near the proposed project would be affected).

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5 The Census Bureau’s poverty statistics represent the number of people below the Census Bureau poverty thresholds. Neither the Census Bureau nor the U.S. Department of Health and Human Services prepare tabulations of the number of people below the HHS poverty guidelines, which are a simplified version of the poverty thresholds used for program eligibility purposes. The best approximation for the number of people below the HHS poverty guidelines in a particular area would be the number of persons below the Census Bureau poverty thresholds in that area. (http://aspe.hhs.gov/poverty/faq.shtml#many).

6 Source: 2007-2011 American Community Survey 5-Year Estimates; Table DP03 Selected Economic Characteristics
The VIA also considered the potential impacts of the project from the perspective of the BLM Visual Resource Management (VRM) system (BLM, 1986) and the USFS Visual Management System (VMS) in terms of whether the project would be consistent with the visual resource objectives of the BLM and USFS lands the project would pass through.

This project passes through BLM lands that have been assigned VRM Classes of III and IV (BLM, 2012). The object of a Class III VRM is to partially retain the character of the landscape while allowing a moderate degree of change to the landscape, while a Class IV VRM allows management activities that result in major modifications to the existing character of the landscape. It also passes through part of the Spring Mountains NRA. The NRA is managed by the USFS, which has assigned this part of the NRA a visual quality objective (VQO) of partial retention. A VQO of partial retention allows for alteration of the landscape on USFS lands if the alterations are not visually evident to viewers and if the desired landscape character appears intact or unaltered. Deviations may be present, but they must repeat the form, line, color, texture, pattern, and scale common to the landscape.

3.6.2 Affected Environment

To assist in the evaluation of the potential visual impacts of the Preferred Alternative, the 11-mile corridor was divided into smaller geographic units of similar characteristics called landscape units. These units are used to describe the baseline conditions and analyze changes associated with a project. The three landscape units assigned to the project analysis area are described below and shown on (Exhibit 3-6).

Landscape Unit 1

The segment of SR 160 passing through Landscape Unit 1 is roughly 7 miles long. It begins at the eastern terminus of the project and ends near MP 18.0, next to the entrance to a large canyon. Land adjacent to the easternmost 1.2 miles is privately owned and contains scattered single-family residences and commercial development. Its character is somewhat rural; its visual quality ranges from moderately low to average.

The remainder of Landscape Unit 1 passes through land managed by the BLM, most of which is part of the Red Rock Canyon NCA. The VRM class for the BLM lands within this landscape unit range from Class IV at the eastern part of the unit and valley floor to Class III toward the western end (BLM, 2012). This part of the landscape unit has a largely undeveloped and natural landscape character and based upon the FHWA visual assessment methodology; its visual quality ranges from average to moderately high. The only human-made features clearly visible along this part of SR 160 through the NCA are barbed wire fences that parallel the highway, electrical transmission lines, and two BLM trailhead facilities (Cottonwood Valley and Late Night).

Landscape Unit 2

Landscape Unit 2 begins at the entrance to a wide canyon and continues northwest and uphill roughly 2 miles to the western Red Rock Canyon NCA boundary (the Landscape Unit 2 boundary). The entire landscape unit lies within the NCA. The VRM assigned by the BLM to this area is Class III.

Vegetation transitions from Mojave Desert Scrub to Great Basin Conifer Woodland within Landscape Unit 2. Much of SR 160 in this landscape unit is north of a wash that parallels it. Except for several unpaved roads (including Mount Potosi Canyon Road) and SR 160 itself, human alteration of the landscape is not readily evident. The viewed landscape has a natural appearance typical of steep valleys passing through mountains in the Basin and Range Physiographic Province. The visual quality of the nearby landscape is average to high.

Landscape Unit 3

Landscape Unit 3 begins at the eastern boundary of Landscape Unit 2 and continues in a northwesterly direction for 2.1 miles through several parcels of the Spring Mountains NRA. It passes over the highpoint of the project (Mountain Springs Summit at 5,490 feet) before curving gently to the west and passing through the unincorporated community of Mountain Springs. The project ends about 1 mile west of Mountain Springs. The Great Basin Conifer Woodland vegetation type found in much of Landscape Unit 3 gives it a more mountainous character than is found in the other two units, particularly in the valley that SR 160 passes through. The parts of the NRA through which SR 160 passes have a VQO of partial retention (USFS, 1996).
The Mountain Springs part of Landscape Unit 3 is the most developed part of the project. Mountain Springs is located in a high, broad valley and is bisected by SR 160. It consists of scattered single-family residences, limited commercial development, and the Mountain Springs Fire Station immediately adjacent to SR 160. Mountain Springs has a rural, low-density, small roadside community character. Several roads (paved and unpaved) enter SR 160 and provide access into the community from SR 160. Visual quality ranges from moderately low to moderately high.

3.6.3 Visual Resource Impacts

As is required in using the FHWA visual assessment methodology, the visual impacts of the project were determined by assessing changes to the landscape character and visual quality of views from SR 160 as a result of the project and changes to the landscape character and visual quality of views of SR 160 from nearby areas. The consistency of the project with the visual resource objectives established by BLM and USFS were determined by using the methodologies developed by the two agencies.

The No-Build Alternative would not affect visual resources.

Landscape Unit 1

Although adding two lanes and widening SR 160 within its right-of-way would change the appearance of SR 160 from some vantage points, its overall visual impact to the landscape character and visual quality of Landscape Unit 1 would be low. However, the additional two lanes, center median, shoulders, and vegetation-free clear zone next to the shoulders would not be particularly noticeable when viewed from areas adjacent to or near SR 160, where views tend to be somewhat screened by the low-lying Mojave Desert Scrub and introduced plants used for landscaping. The improvements would not interfere with views from the highway.

The widening of SR 160 through the Red Rock Canyon NCA generally would occur on both sides of the highway and would not interfere with western-oriented views by motorists from the highway toward the Spring Mountains or side views of features such as washes, outcroppings, and views to the north toward the center of the NCA. It would be somewhat more noticeable than the existing highway to viewers from some locations near the Cottonwood Valley and Late Night trailheads and nearby unpaved roads. However, because of the flatness of the terrain near the trailheads and nearby unpaved roads and screening or partial screening by vegetation, most viewers would likely not notice a difference between the changes associated with the project and existing SR 160. The project would not change the largely undeveloped landscape character of the NCA and would not lower visual quality in terms of reducing its vividness, intactness, and unity. The project would have a low degree of impact to visual resources within the landscape unit.

Consistency with BLM VRM Objectives. The project would not change the character of the viewed landscape that SR 160 passes through. The widening of the highway would produce a weak degree of contrast with the landscape compared to the existing highway and would be consistent with BLM VRM objectives for lands within Landscape Unit 1 (which are Class III and IV). Class IV objectives allow major modifications to the existing character of a landscape, a high degree of change to the characteristic landscape, and actions that may dominate views and be the major focus of viewer attention. The project would exceed these Class IV objectives. Class III objectives are more restrictive. Class III objectives allow moderate modifications to the existing character of a landscape (but partial retention of its character) and changes to the landscape that attract attention but do not dominate views as seen by casual observers. They also require that changes to a landscape repeat the basic elements of form, line, color, and texture found within the predominant natural features of the characteristic landscape. The project would also exceed Class III objectives.

Key Observation Point 1—Turnoff to the Late Night Trailhead. As seen in Exhibit 3-7, the project would not change the natural character of the viewed landscape at this location or detract from views of the Spring Mountains or adjacent scenery. The vividness, unity, and intactness of the viewed landscape would not change with the project; the high visual quality of the view would be retained. The level of visual impact of the project when viewed from the highway would be low, as would the level of impact of views of the highway from nearby
areas such as Late Night Trailhead. It would be difficult to see the changes from the trailhead or parking lot because of low viewing angles and partial screening by vegetation.

The project would be consistent with BLM Class III objectives for this part of the NCA (it would exceed Class III objectives.) The widened highway would not change the character of the viewed landscape, attract attention to the changes associated with the project, or dominate views.

**Landscape Unit 2**

Widening within the narrow Landscape Unit 2 canyon bottom would consist primarily of expanding both sides of the highway and require some areas of cut and some areas of fill. Some vegetation would be removed, but not enough to make a difference to the landscape character of the canyon bottom or slopes or impede views of the higher canyon walls or ridgelines. The wider road would become more of a visual component to people driving on it and to people who would see it from side roads (primarily Mount Potosi Canyon Road) approaching SR 160. Other than people driving SR 160 or side roads, there are very few viewers in Landscape Unit 2.

The widening of SR 160 would not change the largely natural landscape character of this part of the Red Rock Canyon NCA and would not lower visual quality in terms of reducing the vividness, intactness, and unity of the viewed landscape. The project would have a low degree of impact to visual resources within the landscape unit.

**Consistency with BLM VRM Objectives.** The project would result in a weak degree of contrast along the canyon bottom compared to the existing condition (with the existing highway) and result in minor changes, if any, to the character of the viewed landscape. It would be consistent with the BLM VRM objective of Class III for this area.

The widening of SR 160 would somewhat attract the attention of viewers familiar with it as a two-lane road, but would not dominate views from SR 160 or from side roads that enter the highway. The project would not change the character of the viewed landscape within Landscape Unit 2 and would exceed Class III objectives.

**Key Observation Point 2—Entry to the Mountain Springs Area and Spring Mountains NRA.** The Preferred Alternative would not change the character of the viewed landscape (Exhibit 3-8). The center median may allow for an opportunity to provide an entry sign to the Mountain Springs area to complement the entry sign to the Spring Mountains NRA. The vividness, unity, and intactness of the viewed landscape would not change with the project, nor would the average visual quality. The visual impact of the project when viewed from the highway would be low. The level of impact of views of the highway from nearby areas (such as residences on the far hillside) would also be low.

**Landscape Unit 3**

Landscape Unit 3 within the community of Mountain Springs is the part of the project area where visual conditions would change the most as a result of the project. The addition of 2 lanes, a 14-foot-wide raised median, shoulders with bike lane symbols, slope cuts, retaining walls, vegetation removal for construction, and the vegetation-free clear zone next to the shoulders would be readily seen by people. Viewers would include motorists passing through the area, residents driving on SR 160, people driving on side roads, viewers of the project from roadside areas such as the fire station, and people in nearby residences and buildings (although vegetation tends to screen views of SR 160). The width of SR 160 would increase, and its appearance would change somewhat as it passes through Mountain Springs. Entrances and accesses to several side roads and the fire station would be upgraded. In addition, several short segments of roads that parallel SR 160 would be upgraded or built. This may cause the removal of some of the trees along SR 160. While efforts will be made to preserve the trees, some may be lost due to frontage road construction. The improvements would formalize and better define the somewhat informal street patterns and highway entrances near SR 160 that developed over time. The improvements may somewhat change the informal appearance of the highway, but would make the areas adjacent to SR 160 more visually coherent and unified.

The one area where the project would temporarily lower visual quality and have a temporary visual impact would be on the south side of SR 160 west of the fire station near the intersection of Williams Ranch Road. The cutting back of a slope at that location (and the potential construction of retaining walls) would require the removal of vegetation and expose bare rock or soil. With both alternatives, cut slopes would be “roughened” so that they would not have the consistent smooth appearance freshly cut slopes generally have. If retaining walls are
constructed to avoid right-of-way impacts, color and texture to the concrete of the walls would be included to reduce color contrast that would occur with standard, untreated concrete. Changing the appearance of the area and slightly lowering visual quality (from average to slightly below average) with both the Preferred Alternative and retaining wall option would result in moderately high, but temporary, visual impacts. Because the cut slope near the fire station is not on BLM or USFS land, meeting the agencies visual resource objectives will not be required. Although landscape restoration plans have not been developed for the project at this stage of its development, NDOT may spend up to 3 percent of the construction budget on landscape and aesthetics. By replanting areas near the cut back slope, the visual quality would be restored within 4 to 8 years.

As noted in Section 2.6, NDOT will install lighting at the at the high-T intersections along SR 160 to ensure safety because of the posted speed and raised median islands. Lighting would be standard NDOT Type 7 light poles (32 feet high) with light-emitting diode (LED) fixtures. The lighting will be installed entirely within NDOT right-of-way to avoid areas of environmental concern. Intelligent transportation system (ITS) infrastructure will be installed in Mountain Springs. A pole (up to 80 feet high) would be placed near the Mountain Springs Summit. Decisions regarding lighting and ITS components will be made during final design.

**Consistency with USFS VMS Objectives.** East of Mountain Springs, SR 160 passes through scattered parts of the Spring Mountains NRA located between parcels of private land. West of Mountain Springs, SR 160 passes exclusively through the NRA. The entire NRA has a VQO of partial retention, including the area near the eastern end of this landscape unit.

The eastern area is a mixture of Spring Mountains NRA lands and private lands that contain varying levels of development and alteration to the landscape. It may be difficult for viewers to distinguish between NRA and private lands. If the area were all USFS-managed lands, a VQO of partial retention would not be met because of the level of alteration and disturbance. A VQO of partial retention allows for alteration of the landscape on USFS lands if the alterations are not visually evident to viewers and if the desired landscape character appears intact or unaltered. Deviations may be present but must repeat the form, line, color, texture, pattern, and scale common to the landscape. The project would require cuts and fills within the SR 160 right-of-way to accommodate the wider road, median, shoulders, etc. Some cuts and fills would be along part of the SR 160 right-of-way adjacent to the NRA. Widening SR 160 would not greatly alter views into the NRA from the highway or change its character. The appearance of the viewing platform of SR 160 (from which people see the NRA when driving on the highway) would change somewhat (it would be wider.) The project would repeat the form of SR 160 as it passes through the landscape. The appearance of NRA lands seen from SR 160 would not change with the project and, therefore, would be consistent with the visual management objectives of the USFS for those lands.

Regarding the addition of lighting at intersections in Mountain Springs, the main concerns of USFS is the potential number of lights installed along the corridor and the potential to dilute the night sky aspect. The placement of lights only at conflict points and backlight-uplight-glare ratings that are equivalent to a full cut-off classification to help mitigate sky glow, light trespass, and glare address the USFS’s main concerns (see page A-38 in Appendix A).

**Key Observation Point 3—Area of SR 160 West of Mountain Springs Fire Station.** As depicted in Exhibit 3-9, when viewed from this part of Mountain Springs, the project would change the viewed landscape, although the wider road and raised center median would not change the overall character. The cutting back of the slope south of SR 160 and west of the fire station and the addition of retaining walls would require the removal of vegetation and expose bare rock or soil. Changing the appearance of the area and slightly lowering visual quality (from average to slightly below average) would result in a moderately high visual impact. Although landscape restoration plans have not been developed for the project at this stage of its development, it is common for up to three percent of the construction cost of an NDOT project to be allocated for landscape restoration. By replanting areas near the cut back slope, the visual quality of the area would be restored within 4 to 8 years.

### 3.6.4 Mitigation Measures

A landscape element will be part of the final design for the project through coordination with NDOT’s Landscape Architecture group. In Mountain Springs, a vegetative buffer will be placed between the frontage roads (shown on Exhibit 2-11) and SR 160, and existing trees will be preserved where possible. NDOT may spend up to 3 percent of
the construction budget on landscape and aesthetics. Most likely, revegetation will occur in Mountain Springs during construction. Any cut or fill area where native vegetation is disturbed will be the location where revegetation takes place, as long as it is not located within the roadway clear zone.

Through Mountain Springs, cut slopes would be “roughened” so that they would not have the consistent smooth appearance freshly cut slopes generally have. If retaining walls are constructed to avoid right-of-way impacts, color and texture to the concrete of the walls would be included to reduce color contrast that would occur with standard, untreated concrete.

To mitigate concerns about the introduction of lighting along SR 160, the poles, mast arms, and fixture casings could be painted in a color that blends in with the surrounding environment. Lights would be placed only at conflict points and not through the entire length of the intersection. The standard NDOT LED fixtures have backlight-uplight-glare ratings that are equivalent to a full cut-off classification, which helps to mitigate sky glow, light trespass, and glare. Lighting will be focused away from the residential areas to minimize nighttime visibility of the lights from the residences.

3.7 Waters of the U.S.

3.7.1 Affected Environment

Over 100 springs were surveyed in the Spring Mountains in 1995 and 1997 (Sada and Nachlinger, 1998; Purser, 2002). Seasonal precipitation from snow and thundershowers recharges aquifers and provides most of the water to the springs (Hershey, 1989). Water discharge from springs varies with some springs drying yearly, some disappearing only after extended droughts, and others flowing continuously (Sada et al., 2005). Water resources in the study area proximate to the SR 160 right-of-way are limited to several small springs/seeps in the Mountain Springs area that support wetland vegetation. There are no permanent or semi-permanent streams within or immediately adjacent to the SR 160 right-of-way. According to the U.S. Army Corps of Engineers (USACE), the ephemeral washes adjacent to SR 160 are considered waters of the U.S. if they flow east toward the Las Vegas wash (see page A-42 in Appendix A). The ephemeral wash located east of the Mountain Springs Summit flow east toward Las Vegas. A description of the project-area ephemeral washes is provided below.

Drainages in the project area flow toward Las Vegas east of the Mountain Springs Summit and toward Pahrump west of the summit. The project area on the west side of the Mountain Springs Summit is part of the Ivanpah-Pahrump Valleys Watershed. The east side of the summit through the eastern terminus is part of the Flamingo/Tropicana subwatershed, which is 1 of 10 subwatersheds that make up the Las Vegas Valley Watershed (Exhibit 3-10).

The Flamingo/Tropicana subwatershed is located in the southwest and central portions of the Las Vegas Valley. Most of the subwatershed lies within unincorporated Clark County with a small portion in the City of Las Vegas. The subwatershed extends from the Spring Mountains Range on the western rim of Las Vegas Valley to the confluence of Flamingo Wash and Lower Las Vegas Wash. The total area of the Flamingo/Tropicana subwatershed is roughly 200 square miles. Drainage patterns in the Flamingo/Tropicana subwatershed are generally west to east. Red Rock, Flamingo, Tropicana, and Blue Diamond washes begin in the mountainous region west of the Las Vegas Valley. The mountain ravines open to broad, steep alluvial aprons from which storm flows are intercepted by regional detention basins and open channels. These flood control facilities consolidate runoff and convey it along two wash alignments (Flamingo Wash and Tropicana Wash). The Blue Diamond Detention Basin, the regional flood
control facility located about 2 miles east of the SR160/SR 159 intersection, collects all drainage from the east wash and transmits it to the Blue Diamond Channel and Tropicana Wash.

**East Wash**

An unnamed wash flows east from the Mount Potosi and Spring Mountains watershed divide near Mountain Springs Summit and follows eastbound SR 160 (Exhibit 3-11). The wash experiences an elevation change of nearly 1,700 feet in 6 miles, resulting in an average slope of 5.4 percent. There are culverts that convey runoff underneath the roadway to accommodate the natural path of the existing wash. Parts of the roadway embankment are lined with riprap armoring to protect the embankment from scour when the wash is directly adjacent to the roadway.

**West Wash**

To the west of the Mountain Springs Summit, an unnamed wash flows west from the headwaters near the summit and follows westbound SR 160 in the upper parts of the Spring Mountains (Exhibit 3-11). Similar to the east wash, the west wash experiences an elevation change of 240 feet in 1.1 miles, resulting in an average slope of 4.1 percent. In the upper reaches, the south side of the roadway is mainly in rock cut and the north side of the roadway features a retaining wall to protect the roadway in fill areas of the existing wash. In the lower reaches, the roadway embankment is protected with riprap in portions where the wash is near the roadway.

**Culverts**

There are 36 culverts that cross under SR 160 in the project area (27 pipes, and 9 box culverts). There is also one box culvert just outside the project area that conveys flow from the project area. The size and location of the box culverts is listed below:

- **Triple cell, 12-foot x 8-foot at MP 15.73 (East wash)**
- **Dual cell, 12-foot x 10-foot at MP 16.53 (East wash)**
- **Single cell, 10-foot x 10-foot at MP 17.95 (East wash)**
- **Single cell, 12-foot x 10-foot at MP 18.56 (East wash)**
- **Single cell, 8-foot x 4-foot at MP 19.22 (East wash)**
- **Dual cell, 8-foot x 4-foot at MP 19.43 (East wash)**
- **Dual cell, 8-foot x 4-foot at MP 19.79 (East wash)**
- **Dual cell, 10-foot x 5-foot at MP 21.71 (West wash)**
- **Dual cell, 12-foot x 4-foot at MP 22.22 (West wash)**

The culverts at MP 15.73 and 16.53 are used to provide access under SR 160 for BLM trails.

**3.7.2 Impacts**

**No-Build Alternative.** The No-Build Alternative would not require fill or other alterations to the washes; however, existing patterns of sediment deposition above culvert inlets and scour at culvert outlets would continue. No culverts would be replaced or extended.

**Preferred Alternative.** Six of the existing box culverts will be extended under the proposed SR 160 improvements but will remain within existing right-of-way. The box culvert extensions will require some wash regrading, riprap lining, and possibly some concrete lining to accommodate future flow volumes and patterns. Of the other three
box culverts, two will be replaced and upsized to convey flows and one will be left in place (Table 3-3). Two additional box culverts will be installed, one at a new location (MP 21.42, West wash) and one to replace a corrugated metal pipe culvert (MP 12.8, East wash). Some wash regrading will be required with the box culvert replacements and construction of new box culverts.

Of the 27 corrugated metal pipe culverts crossing under SR 160, 22 pipes will be replaced with reinforced concrete pipes or horizontal elliptical reinforced concrete pipe and extended or shortened to accommodate the modified roadway section and maintain existing flow patterns, two will be removed, one will be extended (not replaced), one will be protected in place, and one will be replaced by a box culvert, as previously noted (Table 3-3). The pipes will require some wash regrading, riprap lining, and possibly some concrete lining to convey flows to the washes and to maintain existing drainage patterns. Five new reinforced concrete pipes will be installed at new locations (MPs 13.13, 17.42, 18.68, 19.68, and 20.99).

Driveway culverts will be replaced with reinforced concrete pipe as necessary to accommodate roadway widening and onsite drainage facilities will be added to meet onsite criteria where medians will be constructed on the roadway. A 575-foot long segment of 6-foot by 8-foot box culvert will be placed within the west wash to convey flow under the new SR 160 widening and avoid a mountain cut and right-of-way acquisition west of Williams Ranch Road (Exhibit 3-12). While sediment deposition above culvert inlets and scour at culvert outlets would be expected to continue under the Preferred Alternative, the impact on the wash could be less than under the No-Build Alternative because of improved culvert construction.

Near Mount Potosi Canyon Road the SR 160 alignment is located between mountains on the north and the east wash on the south. To minimize impacts to the mountain on the north and maintain the integrity of the east wash on the south, a retaining wall will be constructed adjacent to the wash on the east and west sides of the Mount Potosi Canyon Road intersection. The minor rock cut on the north side of SR 160 will require a rock containment ditch (Exhibit 3-13). With the addition of the retaining wall, proposed flow depths and velocities in the east wash will be comparable to existing conditions.

In general, the drainage patterns for the east and west washes will be perpetuated. The proposed improvements will not adversely affect existing flow patterns, thereby avoiding impacts to SR 160 and adjacent properties.

Because of the long-term nature of this study, NDOT has not completed the coordination with the USACE that would allow a definitive statement about the project’s potential impacts on waters of the U.S. and the type of permit that would be required to address the impacts. In a future design phase, NDOT will meet with the USACE in the field to obtain their input on determining the ordinary high water elevation for the ephemeral washes. Placing fill below the ordinary high water elevation would be a potential impact on waters of the U.S. NDOT would then delineate the ordinary high water elevation for project’s affected east and west washes and document the results in a Preliminary Jurisdictional Determination Report for the USACE’s review.

It is NDOT’s practice to utilize the Preliminary Jurisdictional Determination process to expedite Section 404 permitting. The type of permit that best suits the project’s impacts will be determined in coordination with the USACE as soon as adequate design detail is available. The December 2013 telephone memorandum with USACE identifies several possible permitting options that could apply to the project (See page A-44, Appendix A).

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<th>Culvert Location</th>
<th>Type of Culvert</th>
<th>Wash</th>
<th>Action</th>
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</thead>
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<td>24-inch CMP</td>
<td>East</td>
<td>Replaced with RCP and extended</td>
</tr>
<tr>
<td>MP 11.56</td>
<td>24-inch CMP</td>
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<td>Replaced with RCP and extended</td>
</tr>
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<td>MP 11.86</td>
<td>24-inch CMP</td>
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</tr>
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<td>MP 12.61</td>
<td>36-inch CMP</td>
<td>East</td>
<td>Replaced with RCP and shortened</td>
</tr>
<tr>
<td>MP 12.8</td>
<td>36-inch CMP</td>
<td>East</td>
<td>Replaced by single cell, 8-foot by 5-foot box culvert</td>
</tr>
</tbody>
</table>
### TABLE 3-3
**Impacts to Existing Box and Metal Pipe Culverts**

<table>
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<tr>
<th>Culvert Location</th>
<th>Type of Culvert</th>
<th>Wash</th>
<th>Action</th>
</tr>
</thead>
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<td>36-inch CMP</td>
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<td>42-inch CMP</td>
<td>East</td>
<td>Replaced with RCP and extended</td>
</tr>
<tr>
<td>MP 14.04</td>
<td>24-inch CMP</td>
<td>East</td>
<td>Replaced with RCP and extended</td>
</tr>
<tr>
<td>MP 14.21</td>
<td>36-inch CMP</td>
<td>East</td>
<td>Replaced with RCP and shortened</td>
</tr>
<tr>
<td>MP 14.45</td>
<td>42-inch x 29-inch CMAP</td>
<td>East</td>
<td>Replaced with HERCP and extended</td>
</tr>
<tr>
<td>MP 14.58</td>
<td>Two 42-inch CMP</td>
<td>East</td>
<td>Replaced with RCP and extended</td>
</tr>
<tr>
<td>MP 14.7</td>
<td>Three 42-inch CMP</td>
<td>East</td>
<td>Replaced with RCP and extended</td>
</tr>
<tr>
<td>MP 15.49</td>
<td>Two 49-inch x 33-inch CMAP</td>
<td>East</td>
<td>Replaced with HERCP and extended</td>
</tr>
<tr>
<td>MP 15.73</td>
<td>Triple Cell, 12-foot x 8-foot box culvert</td>
<td>East</td>
<td>Extended</td>
</tr>
<tr>
<td>MP 16.53</td>
<td>Dual Cell, 12-foot x 10-foot box culvert</td>
<td>East</td>
<td>Extended</td>
</tr>
<tr>
<td>MP 16.78</td>
<td>36-inch CMP</td>
<td>East</td>
<td>Replaced with RCP and extended</td>
</tr>
<tr>
<td>MP 17.95</td>
<td>Single Cell, 10-foot x 10-foot box culvert</td>
<td>East</td>
<td>Extended</td>
</tr>
<tr>
<td>MP 18.28</td>
<td>18-inch CMP</td>
<td>East</td>
<td>Protect in place</td>
</tr>
<tr>
<td>MP 18.56</td>
<td>Single Cell, 12-foot x 10-foot box culvert</td>
<td>East</td>
<td>Extended</td>
</tr>
<tr>
<td>MP 18.9</td>
<td>30-inch CMP</td>
<td>East</td>
<td>Replaced with RCP and extended</td>
</tr>
<tr>
<td>MP 19.02</td>
<td>42-inch CMP</td>
<td>East</td>
<td>Replaced with RCP and extended</td>
</tr>
<tr>
<td>MP 19.22</td>
<td>Single Cell, 8-foot x 4-foot box culvert</td>
<td>East</td>
<td>Replaced and Upsized</td>
</tr>
<tr>
<td>MP 19.26</td>
<td>30-inch CMP</td>
<td>East</td>
<td>Replaced with RCP and extended</td>
</tr>
<tr>
<td>MP 19.43</td>
<td>Dual Cell, 8-foot x 4-foot box culvert</td>
<td>East</td>
<td>Replaced and Upsized</td>
</tr>
<tr>
<td>MP 19.79</td>
<td>Dual Cell, 8-foot x 4-foot box culvert</td>
<td>East</td>
<td>Extended</td>
</tr>
<tr>
<td>MP 20.09</td>
<td>Two 42-inch X 29-inch CMAP</td>
<td>East</td>
<td>Replaced with HERCP and extended</td>
</tr>
<tr>
<td>MP 20.29</td>
<td>Three 49-inch x 33-inch CMAP</td>
<td>East</td>
<td>Replaced with HERCP and extended</td>
</tr>
<tr>
<td>MP 20.45</td>
<td>Three 48-inch CMP</td>
<td>East</td>
<td>Replaced with RCP and extended</td>
</tr>
<tr>
<td>MP 20.63</td>
<td>24-inch CMP</td>
<td>East</td>
<td>Remove</td>
</tr>
<tr>
<td>MP 21</td>
<td>42-inch CMP</td>
<td>West</td>
<td>Replaced with RCP and shortened</td>
</tr>
<tr>
<td>MP 21.15</td>
<td>Four 42-inch x 29-inch CMAP</td>
<td>West</td>
<td>Extend only</td>
</tr>
<tr>
<td>MP 21.46</td>
<td>42-inch CMP</td>
<td>West</td>
<td>Replace with RCP and extend</td>
</tr>
<tr>
<td>MP 21.71</td>
<td>Dual Cell, 10-foot x 5-foot box culvert</td>
<td>West</td>
<td>Extended</td>
</tr>
<tr>
<td>MP 22.22</td>
<td>Dual Cell, 12-foot x 4-foot box culvert</td>
<td>West</td>
<td>Left in Place</td>
</tr>
</tbody>
</table>

CMP = corrugated metal pipe  
CMAP = corrugated metal arched pipe  
RCP = reinforced concrete pipe  
HERCP = horizontal elliptical reinforced concrete pipe
3.7.3 Mitigation Measures

The preliminary opinion of the USACE is that the ephemeral washes adjacent to SR 160 are considered to be waters of the U.S. if they flow east toward the Las Vegas Wash. As noted above, during the design phase, NDOT will coordinate with the USACE to determine which drainages are jurisdictional and will require Section 404 permits before construction. NDOT will adhere to all permit terms and conditions. By federal law, every applicant for a federal permit or license for an activity that may result in a discharge into a water body must request a Section 401 water quality certification from the state that the proposed activity will not violate state and federal water quality standards. The USACE normally does not require mitigation for culvert extensions because by maintaining existing drainage patterns, there is no impact on waters of the U.S. (See page A-44, Appendix A).

3.8 Floodplains

The following definitions from the NDOT Structures Manual are consistent with Federal Emergency Management Agency (FEMA) definitions for purposes of producing Flood Insurance Rate Maps:

- **Base flood** means the flood having a 1 percent chance of being exceeded in any given year (i.e., the 100-year event).
- **Base floodplain** means the area subject to flooding by the base flood.

The 100-year floodplain elevation, also known as the base flood or regional flood elevation, is used for regulatory purposes and represents land that has a 1 percent chance of being flooded in any given year. Floodplains are natural extensions of waterways that provide flood and stormwater attenuation by decreasing water velocities and providing temporary flood water storage, which filters sediments and provides erosion control. Floodplains also provide important natural and beneficial values such as open space and wildlife habitat. The extent to which these functions are provided varies with vegetative cover, stream hydrology, and distance from the waterway.

Runoff from rainfall and snowmelt in the higher elevations is conveyed in the SR 160 east wash to the Blue Diamond Detention Basin facility located east of SR 159. Clark County Regional Flood Control District (CCRFCD) is the public entity responsible for planning, constructing, and maintaining flood control facilities. CCRFCD has developed a drainage master plan for the Las Vegas Valley area that identifies existing and proposed facilities within the project area. The project area east of the Mountain Springs Summit drains to the Blue Diamond Detention Basin facility, located about 2 miles east of the SR 159 intersection.

3.8.1 Affected Environment

FEMA Flood Insurance Rate Maps indicate that the only floodplain in the study corridor adjacent to SR 160 is from roughly MP 13 to MP 18. From roughly MP 15 to MP 18, the 100-year floodplain covers SR 160 (Exhibit 3-14). The 100-year floodplain includes several residential properties at the east end of the project area. Because of the limited time the floodplain contains water, there is no difference in the vegetation in or outside the floodplain which is located within Mojave Desert Scrub habitat.

3.8.2 Impacts to Floodplains

Executive Order 11988, Floodplain Management, and FHWA implementing guidelines in 23 Code of Federal Regulations (CFR) 650 Subpart A, Location and Hydraulic Design of Encroachments on Floodplains (FHWA, 1994) direct federal agencies to take action to reduce the risk of flood loss; minimize the impacts of floods on human safety, health, and welfare; and restore and preserve the natural and beneficial values served by floodplains. The guidelines state that highway improvement alternatives that could support incompatible floodplain development should be avoided where practicable.

**No-Build Alternative**

The No-Build Alternative would not impact the floodplain.
Preferred Alternative

According to FEMA’s Flood Insurance Rate Maps, the Preferred Alternative would affect about 40 acres of floodplain. During a future design phase NDOT will conduct a survey to more precisely identify the 100-year floodplain boundaries and reevaluate the project’s potential floodplain impacts. Because the 100-year floodplain follows the alignment of the east wash, the fill placed in the floodplain would be a longitudinal impact. Longitudinal encroachments run parallel with the floodplain edge.

The pipes and culverts carrying the east wash under SR 160 will be designed to perpetuate existing drainage conditions. Floodplain crossings would be consistent with county floodplain management goals and objectives.

A detailed hydraulic analysis will be conducted for the Preferred Alternative during final design. It is expected that new and replacement drainage structures for the Preferred Alternative will not cause an increase of more than 1 foot in the height of the 100-year floodplain elevation. During final design, additional floodplain mapping will be obtained in order to model the entire wash within the 100-year floodplain limits. Even though there are no specified base flood elevations, a Conditional Letter of Map Revision (CLOMR) would be sought as part of this project. The CLOMR is necessary for the proposed improvements within the 100-year floodplain limits if the improvements result in a water surface increase of 1 foot or more.

Natural and Beneficial Floodplain Values

The cover type within the affected floodplain is entirely Mojave Desert Scrub. The loss of naturally vegetated floodplains would reduce, to some extent, the ability to slow floodwaters and to reduce flood velocities and peaks. Given the small acreage affected compared to the size of the floodplain, loss of the desert shrub cover type is not expected to alter the flood hazard. For similar reasons, the loss of naturally vegetated areas, which slow floodwater (and runoff) and allow deposition of sediment, is not expected to adversely affect water quality.

3.8.3 Mitigation Measures

Since SR 160 is aligned immediately adjacent to the 100-year floodplain of the east wash and, in some places, the floodplain encompasses the highway, spanning the floodplain or moving the highway are the available avoidance alternatives. Because of cost consideration and level of impacts, however, these alternatives are not practicable. The No-Build Alternative, which would avoid floodplain impacts but does not serve the purpose of and need for the project, is not practicable.

A narrow (14-foot) median is proposed for the length of the Preferred Alternative. The narrow median, compared to a standard 30-foot median, will reduce floodplain impacts because there will be less encroachment on the floodplain and less highway surface area.

3.8.4 Preliminary Floodplain Finding

The Preferred Alternative is not expected to have a significant encroachment on the 100-year (base) floodplain, as defined in 23 CFR 650. A significant encroachment has one or more of the following construction- or flood-related impacts:

- **Significant potential to interrupt or terminate a transportation facility that is needed for emergency vehicles or that provides the only evacuation route for a community.** The Preferred Alternative would do neither, but instead would enhance traffic flow and safety.

- **Significant risk (probability of flooding, potential for property loss, and hazard to life during the service life of the highway).** The Preferred Alternative would not increase the probability of flooding, nor cause potential property loss or a hazard to life.

- **Significant adverse impact on natural and beneficial floodplain values.** As noted, the loss of naturally vegetated floodplains should not exacerbate the flood hazard through loss of ability to slow floodwaters and reduce flood velocities and peaks, because of the small acreage affected compared to the size of the floodplain. The loss of vegetated area that slows floodwaters and runoff and allows deposition of sediment is not expected to adversely affect water quality.
Executive Order 11988 and 23 CFR 650 require that the project avoid actions that would support base floodplain development. Support of base floodplain development means to directly or indirectly encourage, allow, serve, or otherwise facilitate additional base floodplain development. Although parts of the Preferred Alternative would be within the floodplain, the project would not support floodplain development because no development would be allowed in the Red Rock Canyon NCA.

3.9 Upland Habitat

3.9.1 Affected Environment

There are two upland habitat types in the study area, Mojave Desert Scrub and the Great Basin Conifer Woodland. The two habitat types are found at different elevations in the study area and have different dominant plant species. Plant species in both habitat types were identified during a field survey in May 2012. The Mojave Desert Scrub habitat is located east of MP 18.5 and is characterized by shrubs such as saltbush (Atriplex spp.), blackbrush (Coleogyne ramosissima), and creosote bush (Larrea tridentata); some cacti such as cholla (Cylindropuntia spp.), pencil cholla (Opuntia ramosissima), beavertail (Opuntia basilaris), and hedgehog (Echinocereus spp.); with scattered yucca (Yucca spp.) and grasses such as bromes (Bromus spp.), needle grasses (Stipa spp.), and three-awns (Aristida spp.).

The Great Basin Conifer Woodland habitat begins near MP 18.5 and extends to the western project terminus. Its dominant plant species include trees such as pinyon (Pinus spp.), juniper (Juniperus spp.), and oak (Quercus spp.). Other species commonly found in this habitat type include big sage (Artemesia tridentata), ash silktassel (Garrya flavescens), pointleaf manzanita (Arctostaphylos pungens), cheatgrass (Bromus tectorum), Indian paintbrush (Castilleja spp.), and Palmer penstemon (Penstemon palmeri).

Within both habitat types, project biologists observed the following species, which are included on the Nevada Department of Agriculture’s Noxious Weed List: Malta starthistle (Centaurea melitensis), Sahara mustard (Brassica tournefortii), and tamarisk (Tamarix spp.). Invasive species like cheatgrass (Bromus tectorum) and red brome (Bromus rubens) also are well represented within the project area and have a high probability to spread. It should be noted, however, that Nevada Revised Statute 555.130 does not list these species as noxious or invasive, as they were previously established in the state in large numbers. No other invasive species were observed during the surveys.

South of SR 160 (between MP 14 and MP 18), primarily within the Mojave Desert Scrub habitat, the Goodsprings Fire of 2005 resulted in substantially fewer shrubs, cacti, and yucca and a dense ground cover of predominantly invasive grasses such red brome (Bromus rubens) and cheatgrass (Bromus tectorum).

A complete list of plant species observed during the May 2012 field survey is included in Appendix B.
3.9.2 Impacts

No-Build Alternative
The No-Build Alternative would not affect upland habitat.

Preferred Alternative
The Preferred Alternative would disturb 187 acres in the existing right-of-way, of which 133 acres would be converted to new pavement, structures, and 30-foot-wide clear zones that would be maintained on each side of the new roadway. The remaining 54 acres would be disturbed temporarily by earthwork, access, and construction equipment travel, but would remain natural ground surface and in time vegetation would be expected to return. Of the 187 acres disturbed by the project, 120 acres would be from the Mojave Desert Scrub habitat and 67 acres from the Great Basin Conifer Woodland habitat. Because of the use of heavy equipment and acreage of disturbance, the project has the potential to spread existing noxious/invasive species and introduce new noxious/invasive species.

3.9.3 Mitigation Measures
Native Nevada cacti and yucca are protected and regulated by Nevada Revised Statutes. NDOT will salvage native Nevada cacti and yucca that will be affected by construction. NDOT’s contractor shall develop and implement a Noxious Weed Management Plan to prevent the establishment and spread of Nevada State listed noxious weeds per Nevada Revised Statute 555.

3.10 Threatened and Endangered Species

3.10.1 Affected Environment
Project biologists conducted a pedestrian survey of the project area between April 30 and May 9, 2012. During the survey, biologists searched for the Mojave desert tortoise and other protected species. The survey area was generally 300 feet on either side of the highway centerline, except in the Mountain Springs area where the survey limits were extended to 600 feet on either side of the centerline. The SR 160 right-of-way is within the survey area.

Federally Listed Species
Table 3-4 is the U.S. Fish and Wildlife (USFWS) list of endangered, threatened, proposed, and candidate species potentially occurring in Clark County. As noted in Table 3-4, all species except the Mojave desert tortoise were excluded from further evaluation. Justifications for excluding the remaining species from further evaluation are included in Table 3-4. Although no Mojave desert tortoises were found during the survey, potential burrows and a carapace, dorsal (upper) section of shell, were observed. There is no designated or proposed critical habitat within 20 miles of the project limits, but areas adjacent to the existing roadway and associated clear zone would be considered suitable desert tortoise habitat. The U.S. Geological Survey (USGS) desert tortoise habitat model (Nussear et al., 2009) predicts suitable habitat from the eastern limit of the project (MP 11) to MP 18.5.

For the purposes of this analysis, suitable tortoise habitat is considered to be undisturbed areas occurring outside the existing clear zone from MP 11 to MP 18.5, the approximate point where Mojave Desert Scrub habitat transitions to Great Basin Conifer Woodland. The Mojave desert tortoise is the subject of an Endangered Species Act (ESA) Section 7 Programmatic Biological Opinion (PBO) issued to the FHWA and is addressed in a separate request to append the FHWA PBO.

State Listed Species
Table 3-5 includes special status species identified by the Nevada Natural Heritage Program (NNHP) as “known to occur” within 1.2 miles of the project area. Table 3-5 also includes species identified by NNHP as possibly occurring in the project area based on habitat. Only the highlighted species are evaluated in detail; the justifications for excluding the remaining species from further evaluation are included in Table 3-5. Species evaluated in detail are addressed below.
### Table 3-4

#### U.S. Fish and Wildlife Service Protected Species List for Clark County

<table>
<thead>
<tr>
<th>Species Name</th>
<th>Status</th>
<th>Habitat Requirements and Distribution</th>
<th>Exclusion Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Amphibians</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relict leopard frog (Rana onca)</td>
<td>ESA C</td>
<td>Permanent streams, springs, and spring-fed wetlands below 1,968 feet in elevation.</td>
<td>Outside elevation range and historical distribution.</td>
</tr>
<tr>
<td><strong>Birds</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Southwestern willow flycatcher</td>
<td>ESA LE</td>
<td>Relatively dense riparian tree and shrub communities associated with rivers, swamps, and other wetlands,</td>
<td>No suitable habitat. No dense riparian vegetation.</td>
</tr>
<tr>
<td>(Empidonax traillii extimus)</td>
<td></td>
<td>including lakes and reservoirs below 8,500 feet.</td>
<td></td>
</tr>
<tr>
<td>Yellow-billed cuckoo (Coccyzus</td>
<td>ESA C</td>
<td>Large blocks of riparian woodlands (cottonwood, willow, or tamarisk galleries) below 6,500 feet.</td>
<td>No suitable habitat. No large blocks of riparian woodlands.</td>
</tr>
<tr>
<td>americanus)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yuma clapper rail (Rallus longirostris yumanensis)</td>
<td>ESA LE</td>
<td>Dense cattail or cattail-bulrush marshes below 4,500 feet.</td>
<td>No suitable habitat. No cattail or cattail-bulrush marshes. Outside current distribution.</td>
</tr>
<tr>
<td><strong>Invertebrates</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mount Charleston blue butterfly</td>
<td>ESA C</td>
<td>Known to occur only at high elevations of the Spring Mountains in open habitat that supports Torrey's milkketch, which grows between 5,000 and 10,800 feet on the east side of the Spring Mountains. The core colonies for the Mount Charleston blue butterfly are located on less than 9 acres in Kyle and Lee Canyons.</td>
<td>Outside current distribution. The project area is at the southern edge of the Spring Mountains about 17 miles south of Kyle Canyon and about 20 miles south of Lee Canyon.</td>
</tr>
<tr>
<td>(Icaricia shasta charlestonensis)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fish</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bonytail chub (Gila elegans)</td>
<td>ESA LE</td>
<td>Warm, swift, turbid mainstem rivers of the Colorado River basin (and reservoirs in the lower basin) below 4,000 feet.</td>
<td>No suitable habitat. No adequate water sources. Outside current distribution.</td>
</tr>
<tr>
<td>Colorado pikeminnow (Ptychocheilus lucius)</td>
<td>ESA LE</td>
<td>Warm, swift, turbid mainstem rivers of the Colorado River basin below 4,000 feet, especially eddies and pools.</td>
<td>No suitable habitat. No adequate water sources. Outside current distribution.</td>
</tr>
<tr>
<td>Humpback chub (Gila cypha)</td>
<td>ESA LE</td>
<td>Large, warm turbid rivers of the Colorado River basin below 4,000 feet, especially canyon areas with deep fast water.</td>
<td>No suitable habitat. No adequate water sources. Outside current distribution.</td>
</tr>
<tr>
<td>Lahontan cutthroat trout (Oncorhynchus clarkii henshawi)</td>
<td>ESA LT</td>
<td>A wide variety of cold-water habitats including large terminal alkaline lakes, alpine lakes, slow meandering rivers, mountain rivers, and small headwater tributary streams.</td>
<td>No suitable habitat. No adequate water sources.</td>
</tr>
<tr>
<td>Moapa dace (Moapa coriacea)</td>
<td>ESA LE</td>
<td>Found in the Warm Springs area at the headwaters of the Muddy (Moapa) River and about 10 miles of the upper river in a variety of habitats, including spring pools, tributaries (spring outflows), and the mainstem of the river.</td>
<td>No suitable habitat. No adequate water sources. Out of species distribution. Outside current distribution.</td>
</tr>
<tr>
<td>Pahrump poolfish (Empetrichthys latos)</td>
<td>ESA LE</td>
<td>Historically, only found in Manse Springs in Nye County until the spring dried up in 1975 from excess groundwater pumping. Since then, three populations have been established: Corn Creek Spring on the Desert National Wildlife Range north of Las Vegas; Shoshone Springs southeast of Ely; and in an irrigation reservoir at Spring Mountains Ranch State Park west of Las Vegas.</td>
<td>Outside current distribution. The project area is about 5 miles south of Spring Mountains Ranch State Park, 40 miles south of Corn Creek Springs, and more than 250 miles southeast of Shoshone Springs.</td>
</tr>
</tbody>
</table>
### Table 3-4
**U.S. Fish and Wildlife Service Protected Species List for Clark County**

<table>
<thead>
<tr>
<th>Species Name</th>
<th>Status*</th>
<th>Habitat Requirements and Distribution</th>
<th>Exclusion Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Razorback sucker (Xyrauchen texanus)</td>
<td>ESA LE ⚫</td>
<td>Riverine and lacustrine areas of larger rivers below 6,000 feet; generally not in fast-moving water and may use backwaters.</td>
<td>No suitable habitat. No adequate water sources. Outside current distribution.</td>
</tr>
<tr>
<td>Virgin River chub (Gila seminuda)</td>
<td>ESA LE ⚫</td>
<td>Moapa River and the mainstream Virgin River from Pah Tempe Springs downstream to the Mesquite Diversion in extreme northwestern Arizona (Mohave County) below 4,500 feet. Only the Virgin River population is listed.</td>
<td>No suitable habitat. No adequate water sources. Outside current distribution.</td>
</tr>
<tr>
<td>Woundfin (Plagoperthus argentissimus)</td>
<td>ESA LE ⚫</td>
<td>Shallow, warm, turbid, fast-flowing water below 4,500 feet. Historically, the woundfin occupied much of the lower Colorado River basin, including two tributaries: the Virgin River, and part of the Gila River. Extirpated from almost all of its historical range except the mainstem Virgin River from Pah Tempe Springs to Lake Mead in northwestern Arizona (Mohave County).</td>
<td>No suitable habitat. No adequate water sources. Outside current distribution.</td>
</tr>
</tbody>
</table>

#### Plants

<table>
<thead>
<tr>
<th>Species Name</th>
<th>Status</th>
<th>Habitat Requirements and Distribution</th>
<th>Exclusion Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Las Vegas buckwheat (Eriogonum corymbosum var. nilesii)</td>
<td>ESA C</td>
<td>A gypsumine species that principally occurs on gypsum but is also found on other unusual substrates such as claybeds and high-boron shales. Based on herbarium records, Las Vegas buckwheat is historically known from three locations in Clark County: Las Vegas Valley, Gold Butte, and the Muddy Mountains.</td>
<td>No suitable habitat. No gypsum soils, gypsophiles, or gypsumine species were observed within the project limits.</td>
</tr>
</tbody>
</table>

#### Reptiles

<table>
<thead>
<tr>
<th>Species Name</th>
<th>Status</th>
<th>Habitat Requirements and Distribution</th>
<th>Exclusion Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desert tortoise (Mojave population) (Gopherus agassizii)</td>
<td>ESA LT ⚫</td>
<td>Mojave desert tortoises occur most commonly below 5,500 feet on gentle slopes with sparse, low-growing shrub cover and sandy gravel soils suitable for digging burrows that do not collapse.</td>
<td>The project may affect, and is likely to adversely affect, the Mojave desert tortoise. This species is the subject of an amended ESA Section 7 PBO issued to the FHWA.</td>
</tr>
</tbody>
</table>

* Source: USFWS list of endangered, threatened, proposed, and candidate species for Clark County, NV. List Date: August 5, 2011 (http://www.fws.gov/nevada/protected_species/species_by_county.html).

* Status Definitions: ESA = Endangered Species Act, LE = Listed Endangered, LT = Listed Threatened, C = Candidate, ⚫ = Designated critical habitat in county * = Believed extirpated from Nevada, + = Endangered only in the Virgin River; Muddy River population is a sensitive species.
### TABLE 3-5
Nevada Natural Heritage Program, At-Risk Taxa Recorded Near the Project Area

<table>
<thead>
<tr>
<th>Species Name</th>
<th>Status</th>
<th>Habitat Requirements and Distribution</th>
<th>Exclusion Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carole’s silverspot <em>(Speyeria carolae)</em></td>
<td>NV S2</td>
<td>Bristlecone pine community, mixed conifer, pinyon-juniper, and sagebrush communities from 6,560 to 10,500 feet in the Spring Mountains (Kyle Canyon, Mount Stirling, Mount Potosi, and Lovell Wash) (Hiatt and Boone, 2003).</td>
<td>Outside species elevation range.</td>
</tr>
<tr>
<td>Nevada admiral <em>(Limenitis weidemeyerii)</em></td>
<td>NV S2, S3</td>
<td>Riparian habitats, bristlecone pine, mixed conifer forest, and pinyon-juniper communities from 4,920 to 9,200 feet in Spring Mountains and the Sheep Range (Hiatt and Boone, 2003).</td>
<td>Evaluated below.</td>
</tr>
<tr>
<td>Spring Mountains acastus checkerspot <em>(Chlosyne acastus robusta)</em></td>
<td>BLM S</td>
<td>Primarily found in riparian areas, mixed conifer and pinyon-juniper habitat, also found in sagebrush from 5,840 to 10,000 feet in the Spring Mountains (Kyle Canyon, Deer Creek; north side of Mount Stirling and north side of Mount Potosi) (Hiatt and Boone, 2003).</td>
<td>Outside species elevation range.</td>
</tr>
<tr>
<td>Spring Mountain comma skipper <em>(Hesperia Colorado mojavensis)</em></td>
<td>NV S3</td>
<td>Riparian areas in mixed conifer forests and pinyon-juniper communities from 4,930 to 9,840 feet in the Spring Mountains throughout the range at mid elevations, and in lesser abundance at higher elevations (Hiatt and Boone, 2003).</td>
<td>Evaluated below.</td>
</tr>
<tr>
<td>Blue diamond cholla <em>(Cylindropuntia multigeniculata)</em></td>
<td>BLM S</td>
<td>Steep, dry, rocky slopes between 2,000 and 3,000 feet on both volcanic and sedimentary soils (Baker, 2005).</td>
<td>Outside general distribution and species elevation range. None observed during survey.</td>
</tr>
<tr>
<td>Coville abronia <em>(Abronia nana</em> ssp. <em>covillei)</em></td>
<td>USFS I</td>
<td>Carbonate, sandy substrates between 5,000 and 10,170 feet in sagebrush scrub, Joshua tree woodland, pinyon-juniper woodlands and conifer forests (California Native Plant Society [CNPS], 2012).</td>
<td>None observed during survey.</td>
</tr>
<tr>
<td>Ivory-spined agave <em>(Agave utahensis var. eborispina)</em></td>
<td>NV S3</td>
<td>Carbonate, rocky slopes in Mojave Desert Scrub between 3101, and 4495 feet (CNPS, 2012).</td>
<td>Evaluated below.</td>
</tr>
<tr>
<td>Jaeger beardtongue <em>(Penstemon thompsoniae</em> ssp. <em>Jaegeri)</em></td>
<td>USFS S</td>
<td>Gravelly limestone soils from pinyon-juniper to subalpine conifer communities between 5,577 and 11,060 feet (Morefield, 2001).</td>
<td>Outside species elevation range. None observed during survey.</td>
</tr>
<tr>
<td>Jaeger ivesia <em>(Ivesia jaegeri)</em></td>
<td>BLM N,C USFS S NV S2,S3</td>
<td>Lower-angle bedrock outcrops and rock crevices in limestone cliffs between 5,200 and 11,060 feet (Morefield, 2001).</td>
<td>None observed during survey.</td>
</tr>
<tr>
<td>Jaeger phacelia <em>(Phacelia geraniifolia)</em></td>
<td>NV S2</td>
<td>Sheltered carbonate rock crevices from 6,233 to 7,546 feet.</td>
<td>Outside species elevation range. None observed during survey.</td>
</tr>
<tr>
<td>Polished blazingstar <em>(Mentzelia polita)</em></td>
<td>NV S1</td>
<td>Restricted to the margins of the southern Spring Mountains and to two sites on a single quadrangle in the Clark Mountains of adjacent San Bernardino County, California (Nevada Native Plant Society [NNPS], 2007).</td>
<td>None observed during survey.</td>
</tr>
<tr>
<td>Shockley rockcress <em>(Boechera shockleyi)</em></td>
<td>USFS I</td>
<td>Dolomite rock outcrops and gravelly soils between 3,937 and 7,217 feet in desert scrub, sagebrush, and pinyon-juniper woodland communities.</td>
<td>None observed during survey.</td>
</tr>
</tbody>
</table>
### TABLE 3-5
Nevada Natural Heritage Program, At-Risk Taxa Recorded Near the Project Area

<table>
<thead>
<tr>
<th>Species Name</th>
<th>Statusa</th>
<th>Habitat Requirements and Distribution</th>
<th>Exclusion Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smooth dwarf greesbush (Glossopetalon pungens var. glabrum)</td>
<td>BLM N,C USFS S NV S1</td>
<td>Carbonate cliff crevices and outcrops in pinyon-juniper, mountain mahogany, and montane conifer forests between 6,000 and 7,800 feet (Morefield, 2001).</td>
<td>Outside species elevation range. None observed during survey.</td>
</tr>
<tr>
<td>Spring Mountains milkvetch (Astragalus remotus)</td>
<td>BLM N USFS S NV S2</td>
<td>Carbonate or sandstone derived soils, in washes or on hillsides and rocky ledges between 3,400 and 7,050 feet in desert shrub and wash communities (Morefield, 2001).</td>
<td>None observed during survey.</td>
</tr>
<tr>
<td>Yellow twotone beardtongue (Penstemon bicolor ssp. bicolor)</td>
<td>BLM N NV S2</td>
<td>Calcareous or carbonate soils in areas receiving runoff such as washes, roadsides, and rock crevices. In creosote-bursage, blackbrush, mixed-shrub, and lower juniper habitats between 2,500 and 5,480 feet (Morefield, 2001).</td>
<td>None observed during survey.</td>
</tr>
</tbody>
</table>

**Reptiles**

<table>
<thead>
<tr>
<th>Species Name</th>
<th>Statusa</th>
<th>Habitat Requirements and Distribution</th>
<th>Exclusion Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banded Gila monster (Heloderma suspectum cinctum)</td>
<td>BLM N,C NV S2</td>
<td>Mojave Desert Scrub, mesquite/catclaw, blackbrush, oak, juniper, and desert riparian habitats on the lower slopes of rocky canyons, mesic flats, washes, and flats with grassland or succulents (Hiatt and Boone, 2003), mainly below 5,000 feet elevation (Nevada Department of Wildlife [NDOW], 2007).</td>
<td>Evaluated below.</td>
</tr>
<tr>
<td>Desert tortoise ( Mojave population) (Gopherus agassizii)</td>
<td>BLM S USFS T NV S2,S3</td>
<td>Mojave desert tortoises occur most commonly below 5,500 feet on gentle slopes with sparse low-growing shrub cover and sandy-gravel soils suitable for digging burrows that do not collapse.</td>
<td>See Table 3-4</td>
</tr>
</tbody>
</table>

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**Nevada Admiral**

**Species Information and Status.** The Nevada admiral is a butterfly with a 2.5- to 3.5-inch wingspan, black wings with white-yellow bands, and a black body with greatly reduced front legs. Larval host plants are primarily willow (Salix spp.) and aspen (Populus tremuloïdes), though serviceberry (Amelanchier utahensis) is also used. Flight season is typically from May to August, with peak activity from late June to early July. Food plant species include mountain balm (Eriodictyon spp.), thistle (Cirsium spp.), virgin’s bower (Clematis ligusticifolia), and common horehound ( Marrubium vulgare) (Hiatt and Boone, 2003). This species is a southern Nevada endemic known from the Spring Mountains (Mount Potosi and Mount Stirling) and the Sheep Range. It occurs primarily in riparian habitats, bristlecone pine, mixed conifer forest, and pinyon-juniper communities at elevations ranging from 4,920 to 9,200 feet (Hiatt and Boone, 2003). The Nevada State Rank for Threats and Vulnerability for Nevada admiral is S2/S3 (Imperiled/Vulnerable to Decline).

**Habitat Suitability and Survey Results.** The project area contains suitable plant communities within the elevation range known for the species. Known larval host plant and food plant species were observed during the surveys (serviceberry, thistle, and horehound). Therefore, the project area contains suitable habitat that could be used. No Nevada admirals were observed during the surveys.
Spring Mountain Comma Skipper.

Species Information and Status. The Spring Mountain comma skipper is a butterfly with a 1.1- to 1.2-inch wingspan, with a smooth body. The male’s wings are light brown with a dark wing border; the female’s wings are brownish with a darker border than males. Larval host plants are unknown, though other subspecies generally use various grasses and sedges. Food plants include thistle (*Cirsium* spp.), rabbitbrush (*Chrysothamnus* spp.), dandelion (*Taraxacum officinale*), and Palmer penstemon (*Penstemon palmeri*). Flight season typically is from May to September, with peak activity from late June to early July (Hiatt and Boone, 2003). This species is a Spring Mountains endemic found in riparian areas in mixed conifer forests and pinyon-juniper communities at elevations ranging from 4,930 to 9,840 feet, though more abundantly at the mid-elevations. Males tend to gather in areas supporting surface water or saturated soil several weeks before females appear (Hiatt and Boone, 2003). The Nevada State Rank for Threats and Vulnerability for Spring Mountain comma skipper is S3 (Vulnerable to Decline).

Habitat Suitability and Survey Results. The project area contains suitable plant communities within the elevation range known for the species. Known larval host plant and food plant species were observed during the surveys (grasses and sedges, thistle, rabbitbrush, and Palmer penstemon). Therefore, the project area contains suitable habitat that could be used. No Spring Mountain comma skippers were observed during the surveys.

Ivory-Spined Agave.

Species Information and Status. Ivory-spined agave is a perennial leaf succulent that blooms from May to June and is known to occur on carbonate rocky slopes in Mojave Desert Scrub at elevations ranging from 3,101 to 4,495 feet (CNPS, 2012). The Nevada State Rank for Threats and Vulnerability for ivory-spined agave is S3 (Vulnerable to Decline).

Habitat Suitability and Survey Results. Carbonate rocky slopes in Mojave Desert Scrub within the species known elevation range are present within and adjacent to existing right-of-way from MP 19.5. During the surveys, ivory-spined agave was observed scattered across the rocky slopes and outcrops outside the existing SR 160 roadway prism from roughly MP 18.5 to MP 19.2.

Banded Gila Monster.

Species Information and Status. The banded Gila monster is a large (18- to 24-inch long) heavy-bodied lizard with black with orange, pink, and/or yellow spots and five chain-like bands on the back from the neck to the base of the tail, which is short, sausage-shaped, and banded. Scales on the back are large, round, and bead-like. The black, forked tongue is flicked in and out similar to snakes. Chuckwallas are commonly misidentified as Gila monsters, though the Gila monster is the only lizard in Clark County with black and orange/pink bead-like scales. This species occurs in Mojave Desert Scrub, mesquite/catclaw, blackbrush, oak, juniper, and desert riparian habitats on the lower slopes of rocky canyons, mesic flats, washes, and flats with grassland or succulents (Hiatt and Boone, 2003), mainly below 5,000 feet elevation (NDOW, 2007). Gila monsters are secretive and difficult to locate, as they use rock piles and other animal burrows for cover (Hiatt and Boone, 2003), and spend greater than 95 percent of their lives underground (NDOW, 2007).

The Gila monster is the only venomous lizard endemic to the United States. Although appearing slow and awkward, it can quickly inflict a painful bite. Venom is secreted by grooved teeth into their saliva, and then powerful jaws are used to grind the saliva into the bite wound (Hiatt and Boone, 2003). The banded Gila monster is a BLM sensitive species designated sensitive by the Nevada State Office. The Nevada State Rank for Threats and Vulnerability for this species is S2 (imperiled). Per Nevada Administrative Code 503.080, the Gila monster is classified as a protected reptile. In accordance with Nevada Administrative Codes 503.090 and 503.093, no person shall capture, kill, or possess any part thereof of protected wildlife without prior written permission from NDOW.

Habitat Suitability and Survey Results. Suitable habitat within the elevation range known for this species is present within and adjacent to existing right-of-way from roughly MP 11 to MP 19.5. No Gila monsters were observed during the surveys.
Other Nevada State-Protected Plants

Native Nevada cacti, yucca, and evergreen trees are protected and regulated by Nevada Revised Statutes 527.060 through 527.120 and Nevada Administrative Code Chapter 527. Several species of native Nevada evergreen trees, cactus, and yucca are present within the existing right-of-way.

3.10.2 Impacts

No-Build Alternative

The No-Build Alternative would not affect threatened or endangered species.

Preferred Alternative

Federally Listed Species. Table 3-6 compares the entire project disturbance acreage and tortoise habitat disturbance acreage. Impacts to individual tortoises may include harassment by capture, handling, and relocation if any tortoises are found within the construction limits during preconstruction surveys. Relocation also may expose tortoises to an increased risk of predation, illness, and/or death. Although unlikely due to clearance surveys and relocation efforts, there is a potential for tortoises to be killed or injured by construction activities. In summary, the project may affect, and is likely to adversely affect, individual Mojave desert tortoises, but will have no effect on designated critical habitat.

State Listed Species.

Nevada Admiral. Although no Nevada admirals were observed during the surveys, due to the ephemeral nature and mobility of butterflies, the species could be present during construction in larval and adult form. However, a small amount of potential habitat would be impacted in the Mountain Springs area compared to suitable habitat available in surrounding areas. Therefore, the project may impact individual Nevada admirals, but is not likely to result in a trend toward federal listing or loss of viability.

Spring Mountain Comma Skipper. Although no Spring Mountain comma skippers were observed during the surveys, due to the ephemeral nature and mobility of butterflies, the species could be present during construction in larval and adult form. A minor amount of marginal habitat may be impacted by this project compared to the suitable habitat available in surrounding areas. Therefore, the project may impact individual Spring Mountain comma skippers, but is not likely to result in a trend toward federal listing or loss of viability.

Ivory-spined Agave. Plants found during the surveys occurred on rocky slopes and outcrops, which may be impacted by cut/fill during construction. However, the amount of habitat that may be impacted is minor compared to suitable habitat present in the surrounding area. Therefore, the project may impact individual ivory-spined agave, but is not likely to result in a trend toward federal listing or loss of viability.

Banded Gila Monster. Suitable habitat may be affected during construction, and any Gila monsters present within the right-of-way during construction could be injured or killed by construction activities. However, the amount of habitat that may be affected is minor compared to suitable habitat present in the surrounding area. If Gila monsters are encountered during construction, NDOT will follow the NDOw Gila Monster Status, Identification, and Reporting Protocol for Observations. Therefore, the project may affect individual Gila monsters, but it is not likely to result in a trend toward federal listing or loss of viability.

Other Nevada State-Protected Plants

Within the 187 acres of impacts to Mojave Desert Scrub and Great Basin Conifer Woodland, the proposed SR 160 improvements likely will affect native evergreen trees at the higher elevations and cactus and yucca at lower elevations, though most of these species are widespread and relatively common.
3.10.3 Mitigation Measures

In March 2013, NDOT submitted a biological assessment for the desert tortoise to the USFWS in order to append the existing FHWA/NDOT/USFWS Programmatic Biological Opinion (PBO) No. 84320-2010-F-0285 on potential effects to the Mojave desert tortoise. In April 2013, USFWS noted the scope of the SR 160 project is not likely to jeopardize the continued existence of the Mojave desert tortoise and is within the scope of the PBO and appended the PBO (see page A-45, Appendix A). NDOT will adhere to all terms and conditions of the PBO and any other project-specific terms and conditions set forth by the USFWS.

All right-of-way fencing on both sides of the roadway within the entire project limits will be replaced with three-strand smooth wire fencing, and desert tortoise fence fabric will be retrofitted to the right-of-way fence from MP 12.15 to MP 17.94. An existing cattle guard at MP 12.15 and an existing box culvert at MP 17.94 provide opportunities for fence tie-in such that the ROW can be completely enclosed. Where right-of-way fencing is at the right-of-way boundary line within these limits, the new fencing will be offset 1 foot toward the roadway to allow for installation of tortoise exclusion fencing without the need for temporary construction easements.

Native Nevada cacti and yucca are protected and regulated by Nevada Revised Statutes. NDOT will salvage native Nevada cacti and yucca that will be affected by construction.

3.11 Wildlife

3.11.1 Affected Environment

The Spring Mountains support a diverse array of wildlife species, including many that are locally uncommon and others that are found only there. The Spring Mountains have been reported to have the highest concentration of biological diversity in Nevada and have been characterized as a “biodiversity hotspot” (The Nature Conservancy, 1994). However, the diversity of elevations and vegetation types within the Spring Mountains also provides habitat for numerous common species that occur throughout southern Nevada and/or in other parts of the state or country. The more common species of mammals found in the Spring Mountains include mule deer, coyote, bobcat, gray fox, kit fox, desert cottontail, white-tailed antelope squirrel, golden-mantled ground squirrel, and Panamint chipmunk.

Many bird species can also be found in the Spring Mountains. The mountains provide stopover habitat during migration as well as nesting habitat for many species of neotropical migrants. Bird species diversity and concentration of nesting is generally associated with the lush vegetation found in riparian areas along canyon bottoms. Bird species distribution within the Spring Mountains generally follows the broad patterns of vegetation types, often modified by the presence of physical features (e.g., cliffs).

The Spring Mountains also provide habitat for many species of reptiles and amphibians. Overall diversity of both reptiles and amphibians is generally greater at lower elevations and where surface water is present.

Desert Bighorn Sheep

The NDOW 2012–2013 Big Game Status Report confirms desert bighorn sheep (*Ovis Canadensis nelsoni*) populations within and adjacent to the project area. North of SR 160, desert bighorn sheep inhabit the Red Rock Escarpment and La Madre portions of the Spring Mountains. South of SR 160, desert bighorn sheep occur in lower densities throughout the Bird Spring Range, Potosi Mountain, Table Mountain, Little Devil Peak, and Devil Peak (Exhibit 3-15). In 2011, the population estimate for desert bighorn sheep inhabiting the Spring Mountains and Bird Spring Range was 234 with 142 surveyed north of SR 160 and 92 south of SR 160 (NDOW, 2013).

*Desert bighorn sheep habitat near the SR 160/Mount Potosi Road intersection.*
During the May 2012 biological field survey, scat and tracks of desert bighorn sheep were observed near MP 18.5 on the north side of SR 160 within the existing right-of-way. According to the BLM, the desert bighorn sheep can cross through the fencing designed to keep horses and burros off the highway, and they use both sides of the highway during lambing season, and for foraging and finding springs.

Generalist Species
During the May 2012 field survey, the following wildlife species or sign of species were observed:

- Birds such as cactus wren (*Campylorhynchus brunneicapillus*), blue-gray gnatcatcher (*Polioptila caerulea*), mourning dove (*Zenaida macroura*), Gambel’s quail (*Callipepla gambelii*), common poorwill (*Phalaenoptilus nuttallii*), common raven (*Corvus corax*), turkey vulture (*Cathartes aura*), and red-tailed hawk (*Buteo jamaicensis*)
- Reptiles such as horned lizard (*Phrynosoma* spp.), zebra-tailed lizard (*Callisaurus draconoides*), coachwhip snake (*Coluber flagellum*), spiny lizards (*Sceloporus* spp.), and Mojave rattlesnake (*Crotalus scutulatus*)
- Mammals such as ground squirrels (*Spermophilus* spp.), wood rat (*Neotoma* spp.) middens, desert cottontail (*Sylvilagus audubonii*), and black-tailed jackrabbit (*Lepus californicus*)

3.11.2 Impacts

No-Build Alternative
The No-Build Alternative generally would limit wildlife impacts to those currently caused by SR 160.

Preferred Alternative
Widening roadways for added capacity increases crossing distances and tends to increase vehicle speeds (regardless of posted speed limits), which generally makes successful wildlife crossings more difficult. This may increase wildlife-vehicle collisions, which can result in human injury and affect wildlife populations in a variety of ways, including increased mortality rates; decreased access to food, water, shelter, and breeding areas; and geographic isolation resulting in decreased genetic diversity.

Given the abundance of the generalist species and their habitat in the study area, the Preferred Alternative within the existing right-of-way is not expected to affect the viability of generalist species. Although fencing is less effective in preventing desert bighorn sheep from crossing SR 160 than it is for burros, the Preferred Alternative is not expected to adversely affect the desert bighorn sheep population. As noted in Exhibit 3-15, the habitat area for the sheep is extensive, thus limiting the necessity to cross SR 160. In addition, while the width of SR 160 will increase, no barrier median is proposed that would trap desert bighorn sheep in the middle of the highway. Raised barrier median would only be constructed intermittently west of MP 19 and would be based on NDOT Standard Type 3 curb, which is 5 inches tall and is a rolled shape that will not impede bighorn sheep or smaller wildlife.

The loss of wooded areas adjacent to SR 160 may result in the loss of nesting habitat for a range of bird species. However, the impacts would be expected to be minor because the Preferred Alternative would affect the edges of existing wooded areas.

3.11.3 Mitigation Measures

All right-of-way fencing on both sides of the roadway within the entire project limits will be replaced with 3 strand smooth wire fencing and desert tortoise fence fabric will be retrofitted to the existing ROW fence from MP 12.15 to MP 17.94. Where right-of-way fencing is at the right-of-way boundary line within these limits, the new fencing will be offset 1-foot towards the roadway to allow for installation of tortoise exclusion fencing without the need for temporary construction easements.

Any vegetation and structures that will be removed will conform with the Migratory Bird Treaty Act to avoid impacts to listed migratory birds (50 CFR 10.13) that may be using vegetation and structures for nesting. When possible, removals should not occur during avian breeding season (generally March 15 through July 31). Raptors and owls may begin nesting as early as January. If removals must occur during avian breeding season, nesting
surveys must be conducted by a biologist with experience in bird identification, general nesting behavior, nest and egg identification, and knowledge of habitat requirements for migratory birds.

Bird nests containing eggs or young will not be disturbed until after the young have left the nest, including swallows nesting on structures, and bats using structures for roosting. An appropriately-sized buffer around any active bird nests (depending upon species) will be maintained until birds fledge.

### 3.12 Wild Horses and Burros

#### 3.12.1 Affected Environment

The project area runs through the Red Rock Herd Management Area (HMA) (Exhibit 3-16). After the Goodsprings Fire of 2005, the BLM rounded up the wild horses in the area and moved them to the south end of the HMA, well away from the project area. Wild horses are no longer present in the project area.

The HMA is 220,000 acres and is estimated to have an Appropriate Management Level of 58 to 70 burros. The Appropriate Management Level is the population objective for the HMA that will ensure a thriving ecological balance among all the users and resources of the HMA. The current population is estimated at 73 to 100 burros.\(^8\)

During the hottest months of the year, the burros occupy ravines seeking shade. During the cooler season, burros use the entire HMA. According to the BLM, normal foraging and seeking water takes the burros to both sides of SR 160. Right-of-way fencing along the highway and cattle guards limit the ability of the burros to cross the highway. Burros use the large box culverts under SR 160, particularly the box culvert adjacent to the Late Night Trailhead parking lot, to access both sides of the highway. The dark color of the burros makes them difficult for motorists to see at night. Burros have been introduced to the Spring Mountains and can disturb the natural landscape by trampling and consuming vegetation, contributing to trailing and the associated erosion, and dispensing seeds of nonnative plants in their hooves and droppings (Mack, 1981).

During the May 2012 biological field survey, a group of four wild burros was observed south of SR 160 near MP 13 on a hillside just outside the existing right-of-way. Burro tracks and scat were prevalent throughout the lower, flatter, eastern part of the study area.

#### 3.12.2 Impacts

**No-Build Alternative**

The No-Build Alternative generally would limit wild horse and burro impacts to those currently caused by SR 160.

**Preferred Alternative**

Widening roadways for added capacity increases crossing distances and tends to increase vehicle speeds (regardless of posted speed limits), which generally makes successful wild horse and burro crossings more difficult. All right-of-way fencing on both sides of the roadway within the entire project limits will be replaced with 3 strand smooth wire fencing. The fencing proposed along the Preferred Alternative and the extension of the existing culvert at the Late Night Trailhead used by burros\(^9\) are expected to avoid adverse impacts to the burro herd.

#### 3.12.3 Mitigation Measures

NDOT will coordinate with BLM’s wild horse and burro specialist to determine whether modifications are required to the extended culvert at the Late Night Trailhead to ensure its continued use by burros.

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\(^9\) BLM’s Wild Horse and Burro specialist reported that burros regularly use the large culvert at the Late Night Trailhead to cross SR 160. See page A-17 of Appendix A for a summary of this conversation.
3.13 Cultural Resources

Section 106 of the National Historic Preservation Act (NHPA) of 1966 requires federal agencies to take into account the effect of any federal undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register of Historic Places (NRHP). Further, the federal agency is required to afford the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on the undertaking. The ACHP has promulgated 36 CFR 800 as a set of regulations for federal agencies to follow in fulfilling the historic properties consultation and compliance process. The regulations provide a step-by-step procedure for the entire compliance process, from initial identification of a cultural resource, through its evaluation, and to final treatment (mitigation) measures, if required, for historic properties.

Compliance with Section 106 of the NHPA and other regulatory requirements includes consultation with concerned Native American groups and other interested parties. Adverse effects to historic properties could occur if (1) highway and related construction would cause damage, destruction, or removal of sites or structures that are listed on or are eligible for listing on the NRHP, or (2) if the project would destroy or degrade the setting of registered or eligible archaeological sites, structures or Traditional Cultural properties when the setting is an important element in the significance of the property. It is federal policy to avoid or minimize adverse effects to historic properties when planning, constructing, or assisting federal projects, but in some cases it is impossible to avoid disturbing or destroying some significant sites or structures if an authorized development is to be implemented. In such instances, it is federal policy to recover the information embodied in those resources through archaeological or historical study before the project begins; realizing the data recovery potential of a cultural resource is a means of mitigating impacts to that resource. In order to most effectively address cultural resources within the SR 160 study area, archaeological sites and historic resources were addressed separately in the resource-specific surveys, and that approach is preserved herein.

3.13.1 Affected Environment

Archaeological Resources

In consultation with SHPO, FHWA determined the area of potential effects (APE) for archaeological resources would be the area of direct impacts within the 400-foot-wide SR 160 right-of-way. The APE includes construction impact zones, proposed locations of intersection improvements, construction easements, staging areas, utility easements, and hydraulic improvements and/or impact areas. The Nevada State Historic Preservation Office (SHPO) concurred with the APE for this project in a June 4, 2013 letter (see page A-51 of Appendix A).

The NDOT Cultural Resource Section conducted an intensive pedestrian survey for archaeological resources in compliance with Section 106 of the NHPA. The results are reported in the document, A Class III Cultural Resources Inventory for the Widening of Twelve and 3/10 Miles of State Route 160 between Milepost 11 and Milepost 23.2, Clark County, Nevada10. The field inventory documented 22 archaeological sites within the area of direct impacts. Sixteen of the sites are prehistoric, and six are historic.11 FHWA determined that 10 of the sites within the APE are eligible for the NRHP (Table 3-7). All sites are eligible for the NRHP under Criterion D for information potential. Sites 26CK3373 and 26CK0241 are also eligible under Criterion C, as they “embody the distinctive characteristics of a type, period, or method of construction,” and site 26CK3848 is also eligible under Criterion A, as it is “associated with events that have made a significant contribution to the broad patterns of our history.” To protect these resources, the location of the archaeological sites, and more specific information about their nature, are not included in this publically accessible document.

The SHPO concurred with NDOT’s and FHWA’s determinations of eligibility for archaeological resources in letters dated July 23, 2013 (see page A-53 of Appendix A).

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10 In an effort to protect the location of the archaeological resources, this document is not included on the CD at the back of the EA.

11 The difference between historic and prehistoric is generally demarcated by the existence of written records which accompany European-American presence in the area.
TABLE 3-7
Prehistoric Architectural Properties within APE

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Description</th>
<th>NRHP</th>
<th>Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>26CK0241</td>
<td>Rock art, roasting pit, lithics</td>
<td>Eligible (C, D)</td>
<td>BLM</td>
</tr>
<tr>
<td>26CK3373</td>
<td>Rock ring complex</td>
<td>Eligible (C, D)</td>
<td>BLM</td>
</tr>
<tr>
<td>26CK3376</td>
<td>Rockshelter</td>
<td>Eligible (D)</td>
<td>BLM</td>
</tr>
<tr>
<td>26CK9241</td>
<td>Roasting pit</td>
<td>Eligible (D)</td>
<td>BLM</td>
</tr>
<tr>
<td>Segment of 26CK3848</td>
<td>Historic trail</td>
<td>Eligible (A, D)</td>
<td>BLM</td>
</tr>
<tr>
<td>26CK3378</td>
<td>Roasting pit</td>
<td>Eligible (D)</td>
<td>USFS</td>
</tr>
<tr>
<td>26CK9242</td>
<td>Prehistoric artifact scatter</td>
<td>Eligible (D)</td>
<td>USFS</td>
</tr>
<tr>
<td>26CK9244</td>
<td>Roasting pit</td>
<td>Eligible (D)</td>
<td>USFS</td>
</tr>
<tr>
<td>26CK9245</td>
<td>Roasting pit, lithics, ceramics</td>
<td>Eligible (D)</td>
<td>USFS</td>
</tr>
<tr>
<td>26CK9246</td>
<td>Roasting pit, groundstone</td>
<td>Eligible (D)</td>
<td>USFS</td>
</tr>
</tbody>
</table>

Architectural Resources

NDOT evaluated properties adjacent to the study corridor to identify potentially historic architectural resources. In consultation with SHPO, FHWA determined that the APE for historic architectural resources would include the area of direct impacts (the 400-foot-wide SR 160 right-of-way), plus a 200-foot-wide buffer beyond the right-of-way to account for indirect impacts. In June 2013, SHPO concurred that FHWA’s APE for historical resources was adequate (See page A-51 of Appendix A).

Architectural resources are historically significant if listed in the National Register of Historic Places (NRHP) or meet criteria for eligibility to the Register. Eligibility criteria for architectural resources are summarized as follows:

- **Criterion A** – Architectural resources associated with events that have made a significant contribution to broad patterns of our history.
- **Criterion B** – Architectural resources associated with the lives of persons significant in our past.
- **Criterion C** – Architectural resources that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

In compliance with Section 106 of the NHPA, NDOT Cultural Resource staff conducted an intensive architectural survey of the project area in March 2010. The results are reported in the document, *Architectural Survey: SR 160 Widening Project between Milepost 11 and Milepost 23.2, Clark County, Nevada* (located on the CD at the back of the document). The field survey documented one potential historic district and eleven historic-aged (pre-1973) buildings within the APE (Exhibit 3-17). FHWA determined that:

- The Warner Compound Historic District is eligible for the NRHP under Criteria A and B.
- Eight buildings are contributors to the Warner Compound Historic District.
- The Warner House is individually eligible for the NRHP under Criterion A. The building is located in the Warner Compound Historic District and is included in the count of contributing buildings to the district.
- The house at 18875 SR 160, was inaccessible and is considered as “eligible” for Section 106 purposes.

The SHPO concurred with NDOT and FHWA’s historic architectural determinations of eligibility in a letter dated July 23, 2013 (See page A-53 of Appendix A).
3.13.2 Cultural Resource Impacts

No-Build Alternative
The No-Build Alternative would not affect cultural resources in the study area.

Preferred Alternative

Impacts to NRHP-Eligible Archaeological Properties
NDOT has designed the Preferred Alternative to avoid all eligible archaeological sites. The project’s indirect visual, audible and atmospheric effects would not alter the traits and characteristics that make the archaeological sites eligible for the NRHP.

As a result of NDOT’s outreach to project stakeholders, including Native American Tribes, about the project and the archaeological resources identified within the study corridor, a number of concerns were raised about potential impacts on archaeological sites even though no sites will be directly affected. In response to those concerns, NDOT will impose the following conditions to further minimize the potential for archaeological impacts:

- No ITS poles or streetlights will be within the viewshed of the two archaeological sites eligible under Criterion C (26CK241 and 26CK3373).
- Archaeological avoidance areas will be fenced off and no construction activities will be allowed within the avoidance areas. An archaeological monitor and tribal monitor will be present during installation of the fencing and during construction.
- If an inadvertent archaeological discovery occurs, no further construction in the area of the discovery will proceed until the requirements of 36 CFR 800.13 and Nevada Revised Statues 383 have been satisfied, including consultation with SHPO and with Native American Tribes that may attach traditional cultural and religious significance to the discovered property.
- Native American consultation will continue until the project is constructed.

Impacts to NRHP-Eligible Architectural Properties
The Preferred Alternative would have no direct impacts to the NRHP eligible, or treated as eligible, buildings and historic district. To address the project’s potential indirect visual, atmospheric, or audible elements on the NRHP-eligible properties within the project’s APE, NDOT will impose the following conditions:

- The project proposes streetlights be placed at certain intersections along SR 160. To minimize the impact, lighting will follow the recommendations of the International Dark-Sky Association. The lights will be LED fixtures with backlight-uplight-glare ratings that are equivalent to a full cut-off classification to help mitigate sky glow, light trespass and glare. The minimum number of lights will be used to achieve the required safety standards. If the Mountain Springs residents request it, NDOT will paint the streetlights green or brown to help the lights blend in with their surroundings.
- Road widening will require the removal of about 100 trees in the Mountain Springs area. When tree removal thins the visual screen provided by the overstory, the trees will be replaced with the same species. Mature trees will be replaced with two smaller trees. Any trees that are replanted will be irrigated, if needed, to ensure that they thrive.
- No ITS poles will be installed within a half mile radius of any historic architectural property. This will ensure that the ITS poles will not be visible from any NRHP property or property being treated as eligible.

In a letter dated September 30, 2013, FHWA and NDOT sent a letter to SHPO stating the case for a finding of no adverse effects on archaeological and historic architectural resources based on the lack of direct impacts and commitments to minimize potential indirect effects. On February 28, 2014, SHPO concurred with FHWA’s and NDOT’s findings of no adverse archaeological or historic architectural effects, thus concluding the Section 106 process for this phase of the project (see page A-55 of Appendix A). The document, Finding of Effect to Architectural Resources: State Route 160 Widening Project, is located on the CD at the back of the document.
3.13.3 Mitigation Measures
Because the Preferred Alternative would avoid direct impacts to archaeological and historic architectural resources, and NDOT has developed the commitments described above to address the potential for indirect effects, no mitigation measures are necessary.

3.14 Geology and Soils

3.14.1 Affected Environment

Geology and Geologic History
The study area is within the Basin and Range Physiographic Province, consisting of isolated ranges separated by aggraded desert plains. That part of the province was once under an ocean, where sediment was deposited and lithified, forming limestone. Later in its geologic history, the area was covered by swamps where mud, sand, and gravel were deposited by river marshes, forming shale and sandstone. The main features of the area—the red cliffs and ranges—were formed from shifting sand dunes that were cemented in place mainly through oxidation, which left behind iron oxide. The iron oxide is what gives these features their red color. These features were developed further through the Keystone Thrust Fault, which forced the older rocks from the ancient ocean (grey rocks) over the younger oxidized rocks (red and tan rocks).¹²

Soils
According to the Natural Resources Conservation Service (NRCS) online soils mapping tool and Custom Soil Resource Report for the study area (on the CD at the back of this document), the study area contains seven different soil associations. The soil associations are similar in their description and drainage characteristics. Table 3-8 lists the soil types, starting at the eastern terminus of the project and proceeding west.

<table>
<thead>
<tr>
<th>Soil Type (East to West)</th>
<th>Slope (%)</th>
<th>Drainage Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irongold-Weiser Association</td>
<td>2 to 8</td>
<td>Well drained</td>
<td>Extremely gravelly fine sandy loam</td>
</tr>
<tr>
<td>Purob-Irongold Association</td>
<td>2 to 8</td>
<td>Well drained</td>
<td>Extremely gravelly loam</td>
</tr>
<tr>
<td>Potosi-Zeheme Rock Outcrop Association</td>
<td>15 to 50</td>
<td>Well drained</td>
<td>Extremely gravelly fine sandy loam</td>
</tr>
<tr>
<td>Seralin-Traley-Rock Outcrop Association</td>
<td>30 to 75</td>
<td>Well drained</td>
<td>Extremely gravelly very fine sandy loam</td>
</tr>
<tr>
<td>Mackscanyon-Goodwater Association</td>
<td>8 to 15</td>
<td>Well drained</td>
<td>Very gravelly sandy loam</td>
</tr>
<tr>
<td>Boxspring-Scrapy-Rock Outcrop Association</td>
<td>30 to 70</td>
<td>Well drained</td>
<td>Extremely gravelly sandy loam</td>
</tr>
<tr>
<td>Purob Extremely Gravelly loam</td>
<td>2 to 8</td>
<td>Well drained</td>
<td>Extremely gravelly loam</td>
</tr>
</tbody>
</table>


3.14.2 Impacts

No-Build Alternative
The No-Build Alternative would not affect geology and soils.

Preferred Alternative

The Preferred Alternative will disturb 188 acres of ground, of which 54 will be permanently converted from the existing surface soil association to pavement. The remaining 134 acres would remain as natural soils and ground cover. Geology may be affected by blasting that may be required in the rocky terrain west of MP 18.

3.14.3 Mitigation Measures

No geology or soils mitigation is required. NDOT salvages topsoil on all projects for reuse as needed throughout the project area.

3.15 Public Use Lands

3.15.1 Affected Environment

This subsection describes the two federally owned holdings in the study area—the USFS-administered Spring Mountains NRA, and the BLM-administered Red Rock Canyon NCA—and the impact of the Preferred Alternative on both. At the end of this subsection is a discussion of the applicability of Section 4(f) of the 1966 U.S. Department of Transportation Act to both federal properties.

Red Rock Canyon NCA

The Red Rock Canyon NCA Establishment Act of 1990 changed the status of the Red Rock Recreation Lands to an NCA, making Red Rock Canyon the first NCA in Nevada. Additional legislation was passed in 1994 to enlarge the NCA from the originally designated 83,000 acres to 196,000. The purpose of the Red Rock Canyon NCA, as stated in its enabling legislation, is as follows:

In order to conserve, protect and enhance for the benefit and enjoyment of present and future generations the area in southern Nevada containing and surrounding the Red Rock Canyon and the unique and nationally important geologic, archeological, ecological, cultural, scenic, scientific, wildlife, riparian, wilderness, endangered species and recreation resources of the public lands therein contained, there is established the Red Rock Canyon National Conservation Area.

The Red Rock Canyon National Conservation Area Resource Management Plan (May 2005) is the managing document for the NCA.

In the study area, Red Rock is bordered on the west by the Spring Mountains NRA and on the east by other BLM land (Exhibit 3-18). Within Red Rock Canyon NCA there are two wilderness areas: La Madre Mountain and Rainbow Mountain, which extends onto the adjacent Spring Mountains NRA. The unique geologic features, plants, and animals of Red Rock Canyon NCA represent some of the best examples of the Mojave Desert.\(^\text{13}\) Many species of plants and animals are endemic to southern Nevada. Some are found only within the Spring Mountains ecosystem.

The Red Rock Canyon NCA has long been a popular location for public recreation and leisure due to unique geological and ecological characteristics. The NCA offers back-country camping, campground camping, hiking and backpacking, horseback riding, mountain biking, off-road vehicle riding, picnicking, road biking, and rock climbing. Red Rock’s Scenic Loop Drive is a 13-mile one-way loop road, which starts at the Visitor Center with access provided from SR 159. The loop provides access to 16 trail heads, each of which has associated parking facilities (Interagency Transportation Assistance Group, 2006).

The only recreational facilities adjacent to the SR 160 study area are the Cottonwood Valley Trail System hiking and mountain biking trails located north and south of SR 160 (Exhibit 3-19). Two trailheads with access from SR 160 serve the trails: the Late Night Trailhead near MP 16, and the Cottonwood Valley Trailhead near MP 17. Both trailheads are served by box culverts that allow hikers and bicyclists to cross under SR 160. These trailheads are also designated for equestrian and off-highway vehicle use by the BLM.

Spring Mountains NRA

The Spring Mountains NRA is one of 10 districts that make up the Humboldt-Toiyabe National Forest; the NRA encompasses about 316,000 acres (Exhibit 3-18). Humboldt-Toiyabe National Forest encompasses 6.3 million acres, making it the largest national forest in the lower 48 states. Its districts are mostly scattered across Nevada and parts of California where the forest crosses state lines.

Portions of the current Spring Mountains NRA were previously managed by the BLM. The Charleston Reserve was created in November 1906 as a USFS area and consisted of 149,165 acres. The size and name of the area managed by the USFS has changed several times over the years. It was managed as a Forest Service Ranger District until the Spring Mountains NRA was established by the Spring Mountains NRA Act (PL-103-63) of 1993.

Under the General Management Plan for the Spring Mountain National Recreation Area: an Amendment to the Land and Resource Management Plan, Toiyabe National Forest (USFS, 1996), which was written to reflect the goals of the Spring Mountains NRA Act, the NRA is managed to achieve six general purposes, which provide themes for organization of more specific goals, objectives, standards, and guidelines:

- Conservation of scenic, scientific, historic, cultural, and other values contributing to the public enjoyment
- Conservation of fish and wildlife populations and habitat
- Protection of watersheds, and maintenance of free-flowing streams and the quality of ground and surface waters
- Public outdoor recreation benefits
- Wilderness areas as designated by Congress
- Management and use of natural resources in a manner compatible with the purposes for which the Spring Mountains NRA was established

The USFS General Management Plan divides the Spring Mountains into the four management areas (Table 3-9). The study area is on the west side of the Spring Mountains NRA, which includes most of the less-developed west slope of the Spring Mountains. The Clark, Wallace, Carpenter, Trout, and Lovell canyon areas, Wheeler Wash, and Mount Potosi lie within it. This management area is bound by the Mount Stirling Wilderness Study Area to the north and the Mount Charleston Wilderness to the east. To the south and west, it extends to the boundary of the NRA. It also includes parts of the La Madre Mountain and Rainbow Mountain Wildernesses that lie within the Spring Mountains NRA.

There are five areas with special designation in the Spring Mountains NRA, three wildernesses (Mount Charleston, Rainbow Mountain, La Madre Mountain), one wilderness study area (Mount Stirling), and one research natural area (Carpenter Canyon).

The Spring Mountains NRA provides recreational opportunities in the form of camping, hiking and backpacking, horseback riding, hunting, mountain biking, off-road vehicle driving and riding, picnic areas, rock climbing, scenic driving, skiing and snowshoeing, and nature viewing. Within the Spring Mountains NRA, there are no formal recreational facilities adjacent to SR 160.
3.15.2 Impacts

Red Rock Canyon NCA
The Preferred Alternative would not acquire property from the Red Rock Canyon NCA.

The Preferred Alternative would reconstruct part of the driveways to the Cottonwood and Late Night Trailheads in the SR 160 right-of-way, but it would not affect the parking area or other amenities at the trailheads. The driveways would be closed for reconstruction. NDOT will coordinate with the BLM Outdoor Recreation Planner on the length of time the driveway would be closed and the potential for temporary access to the trailheads.

The Preferred Alternative will require that the box culverts under SR 160 serving each trailhead be extended within the highway right-of-way. During construction to extend the box culverts, the underpasses would be closed to use by mountain bikers and hikers. NDOT will coordinate the timing of the box culvert extensions with BLM to limit the amount of time construction would affect trailhead use. Bikers and hikers would be able to access trails on both sides of SR 160 by crossing the highway while the culverts are being extended.

The BLM Outdoor Recreation Planner indicated that the proposed SR 160 widening would not affect the Cottonwood Valley Trail System except for the temporary closure of the culverts and entrance to the trailheads (See page A-28 of Appendix A).

Spring Mountain NRA
The Preferred Alternative would not acquire property from the Spring Mountain NRA.

3.15.3 Mitigation Measures

NDOT will coordinate with BLM on the need for temporary access to the Late Night and Cottonwood Valley Trailheads during construction.

3.15.4 Section 4(f) Analysis

The U.S. Department of Transportation Section 4(f) law (49 United States Code [USC] 303) states that federal funds may not be approved for projects that use land from a significant publicly owned park, recreation area, wildlife or waterfowl refuge, or any significant historic site unless it is determined that there is no feasible and prudent alternative to the use of land from such properties, and that the action includes all possible planning to minimize harm to the property resulting from such use.

Section 4(f) applies only to the actions of agencies within the U.S. Department of Transportation, including FHWA. While other agencies may have an interest in Section 4(f), FHWA is responsible for Section 4(f) applicability determinations, evaluations, findings, and overall compliance for highway projects.

Red Rock Canyon NCA
As noted, the Preferred Alternative would affect driveways and box culverts within the SR 160 right-of-way serving BLM trailheads. It would not affect the trailheads outside the right-of-way or the trail system connected to them. The provisions of Section 4(f) do not apply to the temporary impacts to the entrances to the Cottonwood and Late Night Trailheads, because the entrances are within SR 160 right-of-way.

Spring Mountain NRA
The provisions of Section 4(f) do not apply to the Spring Mountain NRA because it is a multi-use public property. As noted, the Preferred Alternative will not affect the Spring Mountain NRA.
3.16 Indirect Effects Analysis

3.16.1 Results of Investigation
An assessment of potential indirect effects on natural or built environment resources is necessary only for resources where a potential direct adverse impact has been identified. To that end, only the resources that may be affected by the SR 160 improvements were evaluated.

Land Use
The Preferred Alternative will be constructed within an existing transportation right-of-way. One exception is that the project may require minimal right-of-way acquisition at two locations near Mountain Springs, but otherwise the project will not result in any encroachment or alteration-related indirect effects on surrounding land uses.

The Preferred Alternative will not result in any indirect effects related to induced growth. It is one of two remaining segments of SR 160 between Las Vegas and Pahrump that has not been expanded to four lanes. The project area segment of SR 160 is an existing two-lane “gap” on a four-lane highway. This project would not increase travel demand from any one place to another, and therefore would not induce any land use development (be it residential or commercial) in the project area by virtue of creating improved vehicular access to any particular locale. Moreover, with the exception of the first mile of SR 160 within the project area, the remainder of the project area is surrounded by the Red Rock Canyon NCA and Spring Mountain NRA, both of which have vast areas of wilderness wherein development is prohibited. Therefore, project improvements to SR 160 will not change existing land use.

Based on this assessment, no indirect effects with regard to land use are expected as a result of the Preferred Alternative.

Socioeconomics
The Preferred Alternative will not displace any residences or businesses. There are no community services in the study area that would be impacted. Given the lack of residential relocations or impacts to community facilities in Mountain Springs, and the ability of residents to continue to conveniently access neighboring residences, the Preferred Alternative would not adversely affect community cohesion. By addressing transportation deficiencies that contribute to the existing crash problem in the study area and the forecasted congestion problem, the Preferred Alternative will facilitate a safer connection between existing study area residents and community facilities and services in Las Vegas and Pahrump. Subsequently, no indirect effects with regard to socioeconomics are anticipated as a result of the Preferred Alternative.

Environmental Justice
No impacts to Environmental Justice populations in the study area are anticipated as a result of the Preferred Alternative.

Visual Resources
Based on the visual impact assessment conducted for the project, it was found that the Preferred Alternative would not change the landscape character of the lands it would pass through, and that, with one or two exceptions near the community of Mountain Springs, the Preferred Alternative would not reduce the existing visual quality of areas near it. The Preferred Alternative would be consistent with the visual resource management objectives that the BLM has established for the NCA and the USFS devised for the NRA.

The Preferred Alternative would be most noticeable in the community of Mountain Springs, where it would widen the existing highway, construct parallel roads, and formalize and better define the somewhat informal street patterns (and highway entrances) near SR 160 that have developed over time. The Mountain Springs community noted the potential loss of trees within the existing right-of-way as a negative impact. The loss of trees is a result of the need for the combined access points and resulting frontage roads. Where possible, trees will be preserved and vegetation will be planted between the frontage roads and SR 160. This will help maintain the visual resource...
and rural mountain character of the community. Additionally, combining driveways into single access points help reinforce the rural character with longer stretches of uninterrupted right-of-way.

Because the Preferred Alternative entails surface transportation improvements inside an existing transportation right-of-way, and the visual resources analysis concluded that the Preferred Alternative would not alter the existing visual setting context or character, it is concluded that no indirect effects related to visual resources would occur.

Waters of the U.S.
Most of the improvements to the east and west washes involve extending box culverts that carry the washes under SR 160. In two locations, one on the east wash and one on the west wash, the wash will be reconstructed to accommodate anticipated runoff; however, the existing drainage pattern and volume of runoff will be maintained. Therefore, no direct adverse impacts with regard to function of the dry washes during rain events or spring melt at higher elevations are anticipated. Subsequently, no indirect effects with regard to waters of the U.S. are anticipated as a result of the Preferred Alternative.

Floodplains
Increasing capacity on the existing roadway requires the conversion of 54 acres of natural ground cover (inside existing dedicated transportation right-of-way) to impervious surface. Additional impervious surface will increase the amount of water draining off the roadway into the adjacent washes and floodplain. However, given the existing large basin areas, wash, and drainage crossings, this increase in runoff is not expected to affect peak runoff, and therefore no direct adverse impacts are anticipated. Subsequently, no indirect effects with regard to floodplain conditions are expected as a result of the Preferred Alternative.

Upland Habitat
The Preferred Alternative would result in the permanent loss of about 133 acres of upland habitat (inside dedicated transportation right-of-way). Field surveys identified the presence of several noxious weeds and invasive species in the two upland habitat types in the study area. Project biologist staff determined that the loss of upland habitat acreage would not result in a direct adverse effect to any species. Subsequently, no indirect effects with regard to the loss of upland habitat acreage are anticipated as a result of the Preferred Alternative.

Threatened and Endangered Species
The biological assessment conducted for this project concluded that the project may affect, and is likely to adversely affect, the Mojave desert tortoise. This species is the subject of an Endangered Species Act Section 7 Programmatic Biological Opinion (PBO) issued to the Federal Highway Administration (FHWA) and is addressed in a separate request to append the FHWA PBO. Indirect impacts may include accidental human encounters and litter during construction attracting ravens, coyotes, and other predators of young desert tortoises. However, a litter control program will be implemented to minimize predator attraction. Trash and food must be disposed of properly in predator-proof containers with resealing lids. The PBO concludes that the Preferred Alternative would not jeopardize the existence of the tortoise or result in the destruction, or adverse modification, of designated critical habitat for this species.

Wildlife
Project staff held discussions with BLM wildlife and biologist specialists regarding potential impacts to desert bighorn sheep. The Preferred Alternative is not expected to affect the desert bighorn sheep population adversely, since the habitat area for the sheep is extensive (thus limiting the necessity to cross SR 160).

With regard to desert bighorn sheep, BLM staff did not anticipate the Preferred Alternative to pose a barrier to desert bighorn sheep movement across SR 160. Therefore, no indirect effects to desert bighorn sheep are expected as a result of the Preferred Alternative.
Wild Horses and Burros

The Preferred Alternative would result in increased crossing distances that generally would make successful wildlife crossings more difficult. However, proposed fencing and extension of culverts used by burros are expected to mitigate potential impacts to the burro herd to below an adverse level.

Project staff held discussions with BLM wildlife and biologist specialists regarding potential impacts to burros and wild horses. BLM staff noted that, after the Goodsprings Fire in 2005, the BLM rounded up the wild horses and moved them to the southern end of the herd management area, well away from the study area. Staff also noted that normal foraging and watering takes the burros to both sides of SR 160 and that the existing fencing along the corridor has done a good job of limiting the crossing; BLM rarely receives calls stating that burros are on the highway. BLM staff noted that burros regularly use the large culvert at the Late Night Trailhead to cross SR 160. Overall, BLM staff concluded that the Preferred Alternative would not adversely affect the existing movement corridors for burros or wild horses. Therefore, no indirect impacts to burros or wild horses are expected as a result of the project.

Noise

FHWA guidelines state that noise abatement must be considered when a noise impact occurs at a particular land use or activity category. Based on analysis performed, none of the existing or predicted future noise levels for the project area approach or exceed the applicable federal noise abatement criteria as a result of the Preferred Alternative; therefore, no direct adverse impacts are expected. The Preferred Alternative would have no indirect effects with regard to traffic noise.

Construction noise would be temporary and intermittent, and the intensity would vary for different areas of the project and the construction activity. Construction noise would only be a concern for the scattered residences at the east end of the project and in Mountain Springs. Construction operations will adhere to local construction noise ordinances. Mitigation measures for stationary and mobile equipment could be addressed in the contract documents as needed and could address placement, hours of operation, noise-level limits, or proper maintenance of equipment.

Air Quality

Although the proposed project is within a PM10 nonattainment area, it would not be a project of air quality concern based on the applicable criteria, and would not result in a direct adverse impact to air quality. Air quality analysis concluded that the Preferred Alternative would not cause or contribute to a violation of CO or PM10 NAAQS. Therefore, the Preferred Alternative would have no indirect effects with regard to air quality.

Cultural Resources

Because of the amount of publicly owned land along SR 160 that is protected from development and the proposed SR 160 improvements being limited to the existing right-of-way, potential indirect effects would be minimal and are generally limited to the APE outside the existing right-of-way. The APE is a 200-foot wide buffer area on each side of SR 160. Within the APE are 9 buildings eligible for the National Register of Historic Places and 10 eligible archaeological properties. To limit adverse indirect effects within the APE, and areas immediately adjacent to it, NDOT has imposed conditions on the type of light fixtures and placement of lights, placement of ITS poles, and removal of trees to reduce the indirect impacts of the project. As a result, the SR 160 project’s indirect impacts will not diminish the integrity of historic properties or archaeological sites outside the SR 160 right-of-way.

Geology and Soils

The Preferred Alternative would require 188 acres of ground disturbance, of which 134 acres would be permanently converted from the existing surface soil association to new pavement, structures, and 30-foot wide clear zones that would be maintained on each side of the new roadway. The remaining 54 acres would be disturbed during construction but would remain as natural soils. The Preferred Alternative would have minimal adverse direct impact. No indirect effects with regard to geology and soils are expected.
Public Use Lands
There are two public use lands, both federally owned, in the study area: the USFS-administered Spring Mountains NRA, and the BLM-administered Red Rock Canyon NCA. The Preferred Alternative would not have direct or indirect effects on either.

3.16.2 Conclusion
The Preferred Alternative would not result in significant adverse indirect impacts to any natural or built environment resources.

3.17 Cumulative Impact Analysis
Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of the present project. A cumulative impact assessment looks at the collective impacts posed by individual land use actions and projects, regardless of the initiator. Cumulative impacts can result from individually minor, but collectively substantial, impacts taking place over a period of time.

An assessment of potential cumulative impacts on the resources of the natural and built environments is only necessary for resources for which a potential post-mitigation adverse direct impact has been identified.

There were no reasonably foreseeable future action (RFFA) projects identified in the SR 160 Corridor Improvement Project area that would be significant enough to contribute to a cumulative impact for any of the respective resources addressed.

3.17.1 Threatened and Endangered Species
As noted in Section 3.10, there are federal- and state-listed threatened and endangered species in the SR 160 corridor. While some individual animals/plants may be affected, the project, when taken in to consideration with impacts from other past, present, and reasonably foreseeable future actions in the area, will not jeopardize the continued existence of these species.

The only federally listed species analyzed in the SR 160 corridor was the Mojave desert tortoise. Although unlikely because of clearance surveys and relocation efforts, there is a potential for tortoises to be killed or injured by construction activities. In addition, the inclusion of tortoise fencing helps prevent tortoises from entering the roadway. In summary, the project may affect, and is likely to adversely affect, individual Mojave desert tortoises, but will have no effect on designated critical habitat, thus having a minimal cumulative impact for the tortoise.

The NNHP identified several state-listed threatened and endangered species as “known to occur” within the SR 160 study area. These species include the Nevada admiral, Spring Mountain comma skipper, ivory-spined agave, and banded Gila monster. While the project may affect individual animals/plants, is not likely to trend towards a federal listing or loss of viability of the species, thus having a minimal cumulative impact for the species.

3.17.2 Upland Habitat
The SR 160 project will disturb 188 acres in the existing right-of-way, of which 134 acres would be converted to new pavement, structures, and 30-foot-wide clear zones that would be maintained on each side of the new roadway. The remaining 54 acres would be disturbed temporarily by earthwork, access, and construction equipment travel, but would remain natural ground surface and, in time, vegetation would be expected to return. Of the 188 acres disturbed by the project, 121 would be from the Mojave Desert Scrub habitat and 67 from the Great Basin Conifer Woodland habitat.

Since the project is expanding an existing highway corridor, the impacts to the Mojave Desert Scrub and Great Basin Conifer Woodland habitat are occurring at the edges of the habitat. Thus, the impacts will be minimal and have a minimal cumulative impact for the habitat.
3.17.3 Waters of the U.S.

No direct or indirect effects with regard to waters of the U.S. are anticipated as a result of the Preferred Alternative; subsequently there is no anticipated cumulative impact. However, because of the long-term nature of this project, NDOT has not completed the coordination with the USACE that would allow a definitive statement about the project’s potential impacts on waters of the U.S. and the type of permit that would be required to address the impacts, therefore a cumulative impact could be realized upon further detailed study.
Exhibit 3-1
Project Location

SR 160 Study Limits
NOTE: All information presented is preliminary subject to revision.

Exhibit 3-2

Wetlands Located Near SR 160

LEGEND
- Proposed Edge of Pavement
- Existing Right of Way
- Drainage Supported Wetland
- Seep or Rush Patch

NOTE: All information presented is preliminary subject to revision.
Exhibit 3-3

Existing and Proposed Mountain Springs Land Use

LEGEND
- Residential Rural
- Open Land
- Public Facilities
- F Fire Department
- PW Public Works

Exhibit 3-4
Demographic Study Area
Exhibit 3-6
Landscape Units and Observation Points Locations

- **Blue Diamond**
- **Mountains Springs**
- **Mt. Potosi**
- **Landscape Unit No. 1**
- **Landscape Unit No. 2**
- **Landscape Unit No. 3**
- **Cottonwood Valley Trailhead**
- **Late Night Trailhead**
- **Mt. Potosi Canyon Road**
- **Avery St.**

**Key observation points for photo-simulations**
- Landscape Unit No. 1
- Landscape Unit No. 2
- Landscape Unit No. 3
- Bureau of Land Management
- Red Rock Canyon NCA (Bureau of Land Management)
- Spring Mountain NRA (Humboldt-Toiyabe National Forest)
- Private Property
- Trailhead
- Observation Point
- SR 160 Study Limits
- Milepost

**Legend**
- A symbol indicates key observation points for photo-simulations.
- Different colors denote various landscape units.

**Scale in Miles**
- 0
- 1
- 2

**SR 160 Environmental Assessment**

**SR 160 Corridor Study - SR 159 to Mountain Springs**
Key Observation Point 1 - Existing view looking southwest along SR 160 near milepost 15 and the turnoff to the Late Night Trailhead.

Key Observation Point 1 - Computer enhancement of the Preferred Alternative looking southwest along SR 160 near milepost 15 and the turnoff to the Late Night Trailhead.
Key Observation Point 2 - Existing view looking northwest from an area east of Mountain Springs near the entry sign to the Spring Mountains National Recreation Area.

Key Observation Point 2 - Computer enhancement of the Preferred Alternative looking northwest from an area east of Mountain Springs near the entry sign to the Spring Mountains National Recreation Area.
Key Observation Point 3 - Existing view looking northwest along SR 160 from an area southeast of the fire station in Mountain Springs.

Key Observation Point 3 - Computer enhancement of the Preferred Alternative looking northwest along SR 160 from an area southeast of the fire station in Mountain Springs.
Exhibit 3-10
Watersheds

LEGEND
- Project Route
- Major Road
- Duck Creek/Blue Diamond Subwatershed (Las Vegas Valley Watershed)
- Flamingo/Tropicana Subwatershed (Las Vegas Valley Watershed)
- Ivanpah-Pahrump Valley Watershed
- SR 160 Study Limits

SR 160 Corridor Study - SR 159 to Mountain Springs
SR 160 Corridor Environmental Assessment

SR 160 Enviromental Assessment
TBG043012132242MKE   3-10_SR160_Watersheds_v5  02.19.14  mjl
Exhibit 3-11

Wash Locations

NOTE: The drainage basin divide in this exhibit is approximate. See Exhibit 3-10 for drainage basin boundaries.

LEGEND

- Project Route
- Major Road
- East/West Wash
- Drainage Basin Divide
- SR 160 Study Limits
NOTE: All information presented is preliminary subject to revision.

Exhibit 3-12
West Wash Box Culvert
Proposed Improvements to East Wash at Mt. Potosi Canyon Road

NOTE: All information presented is preliminary subject to revision.
Exhibit 3-14
Floodplain Boundaries

---

**Legend**
- Project Route
- Major Roads
- 100-year Floodplain
- SR 160 Study Limits
- Trailhead

Scale in Miles

---

**Exhibit 3-14**
Floodplain Boundaries

---

SR 160 Enviromental Assessment

---

SR 160 Corridor Study - SR 159 to Mountain Springs
Red Rock Herd Management Area

Exhibit 3-16

SR 160 Corridor Study - SR 159 to Mountain Springs

LEGEND
- Project Route
- Major Road
- Private Property
- Red Rock Herd Management Area
- Spring Mountain National Recreation Area
  (Humboldt-Toiyabe National Forest)
- Red Rock Canyon National Conservation Area
  (Bureau of Land Management)
- Other BLM Land
- SR 160 Study Limits

Scale in Miles

0 1 2 3 4

Nevada

California

Las Vegas

Blue Diamond

Mountain Springs

Sandy Valley
Exhibit 3-17

National Register of Historic Places Eligible Properties

- Warner Compound Historic District
- Warner House
- 1897’s SR 160
- Contributing Building to Warner Compound Historic District

Legend:
- Warner Compound Historic District
- Warner House
- 1897’s SR 160
- Contributing Building to Warner Compound Historic District

Scale: 0, 150, 300 feet
SR 160 Corridor Study - SR 159 to Mountain Springs

SR 160 Environmental Assessment

LEGEND
- Project Route
- Major Road
- Other BLM Land
- Private Property

Red Rock Canyon NCA (BLM) and Subsections
- Red Rock Canyon NCA (Bureau of Land Management)
- La Madre Mountain Wilderness Area
- Mt. Charleston Wilderness Area
- Rainbow Mountains Wilderness Area
- SR 160 Study Limits

Spring Mountain NRA (USFS) and Subsections
- Spring Mountain NRA (Humboldt-Toiyabe National Forest)
- Mount Stirling
- Mt. Charleston Wilderness Area
- West-Side SMNRA (includes La Madre and Rainbow Mountains)
- Developed Canyons

U.S. Forest Service and Bureau of Land Management Lands

Exhibit 3-18
Exhibit 3-19
Cottonwood Valley Trail System Map

LEGEND
- Parking/Trailhead
- Red Rock Canyon Designated Trails
- Forest Service Designated Routes
- Red Rock Canyon Designated Roads
- Interstate
- US Highway
- State Highway
- County Highway
- Dirt Roads
- Powerline
- Rec Rock Canyon National Conservation Area
- Designated Wilderness Area
- Closure OHV

Bureau of Indian Affairs
Bureau of Land Management
Bureau of Reclamation
City of Las Vegas
Clark County, Nevada
Department of Defense
Department of Energy
Fish and Wildlife Service
Forest Service
National Park Service
Nevada State
Private
Project Area

SOURCE: Bureau of Land Management

Scale in Miles

Mountain Springs
Late Night Trailhead
Cottonwood Valley Trailhead

Source: Bureau of Land Management
4. Agency Coordination and Public Involvement

This section discusses public involvement activities and coordination with local, state, and federal review agencies as well as other stakeholders during the development and evaluation of alternatives and the preparation of the EA. The public involvement process was open to all residents and population groups and did not exclude any persons because of income, race, national origin, sex, age, religion, or handicap. NDOT developed a Coordination Plan (located on the CD at the back of the document) to facilitate and document FHWA and NDOT’s interaction with the public and other agencies and to inform them of how the coordination will be accomplished.

4.1 Public Involvement

Opportunities were provided for local officials, area residents, and other stakeholders to participate in developing the purpose and need factors and alternatives for the SR 160 project, as well as provide comments on the project in general. Public involvement efforts included public information meetings (PIMs) and other public outreach activities.

4.1.1 First Public Involvement Meeting (May 2010)

A PIM was held on May 13, 2010, at the Reedom Elementary School, 10025 Rumrill Street in Las Vegas east of the study area. NDOT held this meeting to introduce the SR 160 corridor study, to describe the study purpose and goals, to provide background information on the study area, and to obtain public views on the project.

NDOT notified affected parties about the PIM by placing advertisements in the Las Vegas Review Journal, Pahrump Valley Times, and El Mundo Spanish Language Newspaper. The meeting notice was included in the Intent-to-Study letter for the project, which was sent to federal and state resource agencies, local governments, public organizations, special interest groups, property owners along SR 160, and known concerned/affected citizens that may have an interest in the proposed project. Page A-1 of Appendix A contains a list of federal, state, and local agencies and local property owners and interested parties to which the letter was sent.

The meeting was conducted in an “open house” format from 4:00 PM to 7:00 PM, providing the public an opportunity to view project displays and individually discuss the project with project team members. A brief project presentation was also given, followed by a question and answer session. Comments were submitted by speaking at the meeting (all comments were transcribed), submitting a comment form, or by submitting mailed or electronically conveyed messages to NDOT. The comment period was open for 15 days past the date of the meeting as specified in NDOT’s Public Involvement/Hearing and Procedures. Public comments focused on traffic and turning movements on the east end of the project along with impacts to the Mountain Springs community. The CD at the back of this document contains the transcript from the meeting.

4.1.2 Second Public Involvement Meeting (March 2012)

NDOT conducted the second SR 160 PIM on March 29, 2012, at the Mountain Springs Fire Station in Mountain Springs. The purpose of the second PIM was to obtain public input on the project purpose and need and the range of alternatives being considered in the project corridor. The meeting focused on the four preliminary alternatives proposed for the Mountain Springs area.

NDOT notified affected parties about the PIM by placing advertisements in the Las Vegas Review Journal, Pahrump Valley Times, and El Mundo Spanish language newspaper. NDOT also sent invitations to those on the Intent-to-Study list and others who requested project information since the first PIM. The mailing list for the second PIM is located on page A-11 of Appendix A and the invitation is located on pages A-19 and A-20. Flyers were also placed in the project area.

The meeting was conducted in an “open house” format from 4:00 PM to 7:00 PM, giving the public an opportunity to view project displays and individually discuss the project with project team members. A brief project presentation was also given, followed by a question and answer session. Comments were submitted by speaking...
at the meeting (all comments were transcribed), submitting a comment form, or by submitting mailed or electronically conveyed messages to NDOT. The comment period was open for 15 days past the date of the meeting as specified in NDOT’s Public Involvement/Hearing and Procedures. Meeting attendees were provided a handout containing a project overview letter, a comment form, and exhibits showing the preliminary alternative proposed for the east end of the project and the four preliminary alternatives for the Mountain Springs area.

Project displays outlined the preliminary SR 160 alternatives and project purpose and need. Meeting attendees supported Alternative 1 (four lanes with a center median) and were opposed to alternatives that intruded upon Mountain Springs or restricted access in the community. Residents of Mountain Springs stated that they would like to maintain the existing character of the community. The CD at the back of this document contains the transcript from the meeting.

4.1.3 Mountain Springs Citizens Advisory Council

On August 15, 2012, and April 10, 2013, a member of the project team attended the Mountain Springs Citizens Advisory Council (CAC) Meetings. The Mountain Springs CAC consists of Mountain Springs residents that advise the Clark County Board of County Commissioners on policy issues of local interest, such as transportation and development. The CD at the back of the document contains a summary of the CAC meetings.

At the August 15, 2012, meeting, the project team presented information about the Preferred Alternative (four lanes with a center median), took suggestions, and answered questions from the CAC. The main concern the CAC had regarding the project involved reducing the speed limit through Mountain Springs. The project team provided an update on the SR 160 project at the April 10, 2013, CAC meeting. Key concerns of the CAC included intersection lighting and access to the “unofficial” trailhead on the east end of the community. In April 2014 the CAC sent a letter to the project team expressing continued concern regarding the effects of street lights on Mountain Springs and NDOT responded (see Appendix A, pages A-61 and A-62).

4.2 Agency Coordination

Coordination with state and federal review agencies and Native American tribes for this SR 160 project began in 2010 and continued through development and refinement of alternatives and preparation of the EA. In April 2010, as part of the NEPA process, NDOT developed a Coordination Plan. The purpose of the coordination plan is to facilitate and document FHWA’s structured interaction with the public and other agencies and to inform the public and other agencies of how the coordination will be accomplished. The plan was sent to the BLM and USFS, the project’s cooperating agencies in 2010. In June 2012 the Coordination Plan was updated to reflect the activities that originally took place and the updated dates for various project activities (CD at the back of this document). The updated plan, which reflects the spirit of the surface transportation bills Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) 6002 and Moving Ahead for Progress in the 21st Century (MAP-21) procedures, was sent to the BLM on September 11, 2012 and the USFS on August 8, 2012.

4.2.1 Intent-to-Study Letter

NDOT prepared an Intent-to-Study letter and forwarded it to federal and state resource agencies, local governments, public organizations, special interest groups, property owners along SR 160, and known concerned/affected citizens that may have an interest in the proposed project. The Intent-to-Study letter was mailed and noticed on April 16, 2010. Page A-1 of Appendix A contains a list of federal, state, and local agencies and local property owners and interested parties to which the letter was sent. An Intent-to-Study letter describes the preliminary concept of the project, the details of the scheduled PIM, and a request for comments. This letter included the following:

- Project location
- Project description
- List of potential impacts
- Response procedures and comment period
Name and address of point of contact at NDOT  
Date and location of the first PIM

A map of the project area accompanied the letter.

### 4.2.2 Cooperating Agencies

On September 1, 2010, FHWA, in cooperation with NDOT, mailed invitations to key government agencies with a direct interest in the SR 160 project to participate as “Cooperating Agencies” in coordination with CEQ regulations (40 CFR 1501.6 and 1506.3). Participation of Cooperating Agencies was sought throughout all stages of the EA for technical information, resolution of issues, and identification of specific review and approval requirements. The BLM and USFS participated in the development of the EA as Cooperating Agencies and have been involved throughout the project development process.

An agency scoping meeting was held with BLM and USFS on February 22, 2012. The group concluded that an EA was the appropriate class of NEPA document for this study. The agencies noted that they would like to review the individual sections of the document as they were produced and not wait to review the entire document. Page A-21 of Appendix A contains a summary of the meeting.

**BLM Coordination**

The BLM was invited to participate in the project development process as a Cooperating Agency by letter dated September 1, 2010, and accepted Cooperating Agency status by letter dated October 5, 2010 (see page A-25 of Appendix A).

The project team coordinated with BLM to discuss potential impacts to BLM land, including the Red Rock Canyon NCA and Pine Creek Wilderness Study Area (WSA) (the WSA was made part of the Rainbow Mountain Wilderness Area). Issues discussed with BLM officials included impacts to burros, wild horses, and desert bighorn sheep, visual resources, herd management areas, recreation resources, and access to the Late Night and Cottonwood Valley Trailheads. BLM noted that it did not anticipate impacts to these resources on its land but did ask that access be maintained to both trailheads during construction. Appendix A documents coordination with BLM.

BLM officials were also provided the opportunity to review the purpose and need statement, alternatives section, agency coordination plan, and a draft version of the EA for the project. The BLM was provided a response to the comments they had on the draft version of the EA.

**USFS Coordination**

The USFS was invited to participate in the project development process as a Cooperating Agency by letter dated September 1, 2010, and accepted Cooperating Agency status by letter dated September 22, 2010 (see page A-35 of Appendix A).

The project team coordinated with USFS to discuss potential impacts to USFS land in the Spring Mountains NRA. Issues discussed with USFS officials included impacts to visual resources and recreation resources on USFS land. USFS noted that they did not anticipate impacts to these resources. On August 15, 2013, the USFS responded to the project team regarding lighting that may be part of the project. The USFS noted that the information provided regarding lighting addressed concerns it had regarding the location of the lighting and the lighting shining up toward the night sky. Coordination with USFS is documented in Appendix A.

USFS officials were given the opportunity to review the purpose and need statement, alternatives section, agency coordination plan, and a draft version of the EA for the project. The USFS was provided a response to the comments they had on the draft version of the EA.

### 4.2.3 United States Army Corps of Engineers Coordination

During the project, coordination took place with the USACE St. George, Utah, Regulatory Office. Appendix A pages A-42 through A-44 document coordination with the USACE. The project team coordinated with USACE staff on issues surrounding waters of the U.S. and Section 404 permitting issues. USACE indicated that washes in the project...
area flowing toward the Las Vegas Wash would likely be considered waters of the U.S. USACE also provided guidance regarding the thresholds of a nationwide permit or an individual permit regarding impacts to the wash. It also noted that any fill placed below the ordinary high water mark in a wash would be considered an impact.

4.2.4 United States Fish and Wildlife Service
In March 2013, NDOT and FHWA sent a request to the United States Fish and Wildlife Service (USFWS) to append the programmatic biological opinion (PBO) issued by USFWS to FHWA in September 2010 regarding the potential effects of the SR 160 project on the Mojave desert tortoise (a species listed as threatened under the Endangered Species Act of 1973). In April 2013, USFWS noted the scope of the SR 160 project is not likely to jeopardize the continued existence of the Mojave desert tortoise and is within the scope of the PBO and appended the PBO (see page A-45 of Appendix A).

4.2.5 State Historic Preservation Office Coordination
NDOT and FHWA coordinated with the Nevada State Historic Preservation Office (SHPO) to determine if the SR 160 project would have an adverse effect on any cultural resource within the project’s Area of Potential Effect (APE). Appendix A documents coordination with SHPO. On April 15, 2013, NDOT and FHWA sent correspondence to SHPO outlining the proposed APE for cultural resources. On June 4, 2013 SHPO concurred that the APE was adequate (see page A-51 of Appendix A).

NDOT and FHWA requested concurrence from SHPO with the determination of eligibility for properties within the APE by letter dated June 25, 2013. On July 23, 2013, SHPO concurred with the recommendations in the determination of eligibility letter (See page A-53 of Appendix A).

NDOT and FHWA requested concurrence from SHPO with the Determination of Eligibility and Effect by letter dated September 30, 2013. On February 28, 2014, SHPO concurred with the findings of NRHP eligibility and the findings of no adverse effect (See page A-552 of Appendix A).

4.2.6 Miscellaneous Coordination
NDOT coordinated with the U.S. Post Office regarding moving the mailbox clusters in Mountain Springs from their current locations to new locations on the proposed north and south frontage roads. The postmaster supported installation of the new mailboxes as long as NDOT considered this a project cost (see page A-57 of Appendix A).

NDOT also coordinated with the Nevada National Heritage Program (NNHP) to obtain a list of the state endangered, threatened, candidate, and/or at-risk plant and animal species within or near the SR 160 corridor (see page A-58 of Appendix A).

4.2.7 Native American Coordination
Six tribes and tribal organizations were consulted by FHWA pursuant to the National Historic Preservation Act (NHPA) and the National Environmental Policy Act (NEPA) for this proposed project. The four federally recognized tribes consulted are the Chemehuevi Indian Tribe, the Las Vegas Paiute Tribe, the Moapa Band of Paiutes, and the Timbisha Shoshone Tribe. One non-federally recognized tribe, the Pahrump Band of Paiutes, was included in the consultation on the basis of their demonstrated cultural concern with the proposed project area. The Las Vegas Indian Center was invited to consult on the basis of its previous representation of tribal interests within the region, but it declined to participate in consultation.

Consultation under NEPA was coordinated by mailing the federally recognized tribes and nonfederally recognized tribal representatives the Intent-to-Study letter and notice for the May 13, 2010, public meeting, and the notice for the public meeting on March 29, 2012. Several representatives went on record with questions and concerns relative to the proposed project at that latter meeting.

Government-to-government consultation under NHPA was initiated by letter from FHWA to the tribal chair people and organization director on February 24, 2010. These letters were also sent to their respective tribal cultural designees on that same day. Follow up phone calls, emails, field consultations, and in-person meetings
have taken place between the NDOT Native American Consultation Coordinator and the tribal cultural designees beginning in February 2010 and are still actively ongoing. Appendix C summarizes the dates of communication. Areas of particular concern were discussed during consultation with the tribes and tribal organizations. In response to those concerns, NDOT altered the alignment of SR 160 to avoid all National Register–eligible archaeological sites. NDOT also agreed to archaeological monitors and unpaid tribal monitors during construction.
5. References and Supporting Documents


BLM. 2012. E-mail communication between Cheryl G. Cote, Realty Specialist, Las Vegas Field Office, BLM, and Mark Greenig, CH2M HILL. February 29, 2012.


Clark County Comprehensive Planning Department. 2013b. Mountain Springs Detail Adopted Planned Land Use Map. Clark County, Nevada.


FHWA. 2012. *Order 6640.23A, Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*.


5-2


Appendix A

Agency Coordination during EA Preparation
SUSAN KLEKAR DIVISION ADMINISTRATOR
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FEDERAL EMERGENCY MANAGEMENT AGENCY
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OAKLAND CA 94607-4052

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US DEPARTMENT OF THE INTERIOR
REGIONAL ENVIRONMENTAL OFFICER
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OAKLAND CA 94607-4807

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FOREST SERVICE REGION 4
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OGDEN UT 84401

US DEPARTMENT OF THE INTERIOR
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FISH AND WILDLIFE SERVICE
911 NE 11TH AVENUE
PORTLAND OR 97232-4181

UNITED STATES FOREST SERVICE
1200 FRANKLIN WAY
SPARKS NV 89431

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BUREAU OF LAND MANAGEMENT
LAS VEGAS DISTRICT OFFICE
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BUREAU OF INDIAN AFFAIRS
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PHOENIX AZ 85001

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BUREAU OF LAND MANAGEMENT
LAS VEGAS DISTRICT OFFICE
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LAS VEGAS NV 89130-2301

BUREAU OF RECLAMATION
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BOULDER CITY NV 89006-1470

US FISH AND WILDLIFE SERVICE
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LAS VEGAS NV 89130

DEPARTMENT OF ENERGY
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LAS VEGAS NV 89193

US ARMY CORPS OF ENGINEERS
SECTION CHIEF
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SACRAMENTO CA 95814

REGULATORY PROJECT MANAGER
US ARMY CORPS OF ENGINEERS
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ST GEORGE UT 84790-7314
ROBERT W HALL
NEVADA ENVIRONMENTAL COALITION INC
10720 BUTTON WILLOW DR
LAS VEGAS NV 89134

CLARK COUNTY FIRE DEPARTMENT
575 E FLAMINGO RD
LAS VEGAS NV 89119

MOUNTAIN SPRINGS CITIZENS ADVISORY COUNCIL
STATE ROUTE 160
MOUNTAIN SPRINGS NV 89161

ENTERPRISE TOWN ADVISORY BOARD
PO BOX 93956
LAS VEGAS NV 89193-3956

REGIONAL FLOOD CONTROL DISTRICT
600 S. GRAND CENTRAL PKWY SUITE 300
LAS VEGAS, NV 89106-4511

CLARK COUNTY FIRE DEPARTMENT
STATION 79
21 SR 160
MOUNTAIN SPRINGS NV 89124

FRANK MAURIZIO
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PAHRUMP, NV 89060

MIKE DARBY
PAHRUMP TOWN BOARD
400 N NEVADA HIGHWAY 160
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NICOLE SHUPP
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SUSAN BRAGER VICE CHAIRMAN
CLARK COUNTY COMMISSION
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LARRY BROWN
CLARK COUNTY COMMISSIONER
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TOM COLLINS
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500 GRAND CENTRAL PARKWAY
LAS VEGAS NV 89106

VIRGINIA VALENTINE
CLARK COUNTY MANAGER
500 GRAND CENTRAL PARKWAY
LAS VEGAS NV 89106
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NELSON FAMILY TRUST
NELSON STEVEN L & CINNAMON M TRS
1907 E ROBINDALE RD
LAS VEGAS NV 89123-1503

MOLINA LIVING TRUST
P O BOX 15004
LAS VEGAS NV 89114-5004

J G LAS VEGAS BLUE LLC
1960 CARLA RIDGE
BEVERLY HILLS CA 90210-1844

HOPE DIAMOND LLC
INTERCAPITAL DEVELOPMENT INC
2320 PASEO DEL PRADO B-305
LAS VEGAS NV 89102-4335

2007 M R LLC
G PUCKETT MGR
9917 VILLA RIDGE DR
LAS VEGAS NV 89134-7635

WU MEI-SU
D SPENCER
3753 LONE MESA DR
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HENDERSON NV 89052-3054

CHRISTIAN LOU DIAMOND LLC
2060 DIAMOND BAR DR
LAS VEGAS NV 89117-1929

DIAMOND J-E TRUST
BOGGS JENNIFER B TRS
HCR-33 BOX 2856
LAS VEGAS NV 89161-9207

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MCKAY JANIS L
HCR-33 BOX 2855
LAS VEGAS NV 89161-9207

FORTIER JACQUELINE
FISHER JARED L & HEATHER L
P O BOX 281
BLUE DIAMOND NV 89004-0281

ZAHLER FAMILY SURVIVOR'S TRUST
ZAHLER EVA JOANNE CO-TRS
16352 WILDFIRE CIR
HUNTINGTON BEACH CA 92649-2539

HITE MELVIN & NANCY
7240 W HOMewood
LAS VEGAS NV 89147-4832

C J P HOLDINGS LLC
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SPRING VALLEY IL 61362-1023

BIG T LP
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LAS VEGAS NV 89131-4635
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193 GLENBROOK ESTATES DR
LAS VEGAS NV 89183-5072

WYNN ALBERT CECIL JR REV TR
WYNN ALBERT CECIL JR TRS
4950 EUGENE AVE
LAS VEGAS NV 89108-3030

NAVARRO CHRISTIAN
13340 STATE HIGHWAY #160
LAS VEGAS NV 89124-0000

ROSS ELLEN J LIVING TRUST
ROSS ELLEN J TRS
214 E SHELBOURNE
LAS VEGAS NV 89123-2137

ERNST PHILIP W REVOCABLE LIV TR
ERNST PHILIP W TRS
8578 LAMBERT DR
LAS VEGAS NV 89147-5269

OMNI FAMILY LP
2827 S MONTE CRISTO
LAS VEGAS NV 89117-2952

CHAMNONGCHAREON WONG NIVES
CHAMNONGCHAREON WONG SUREEPRON
7040 ENCORE WY
LAS VEGAS NV 89119-0374

BUONANNO CARMINE 2004 TRUST
BUONANNO CARMINE 2004 TRS
2560 DEER SEASON ST
HENDERSON NV 89052-4994

JOHNSON MELODY
12920 W COUGAR AVE
LAS VEGAS NV 89124-0000

B-D FORIESTER LLC
2835 S BRONCO RD
LAS VEGAS NV 89146-5207

WALDRON TODD R & DOROTHEA ANN
7947 SALLY IRENE CT
LAS VEGAS NV 89113-1759

ROHAY RALPH J & AUDREY P
309 W LAKE MEAD PKWY #B
HENDERSON NV 89015-7056

TSAI MI HUI
BACKHAUS RICHARD L
8638 SHEEP GULCH WY
LAS VEGAS NV 89178-7235

SPINDLER DOUG & MARY
19926 RAMLO SHORES DR
HENDRICKS MN 56136-1243

MULLENBACH WILLIAM LEON
HCR-33 BOX 2973
LAS VEGAS NV 89161-9250

LAFEVER WILLIAM C LIVING TRUST
LAFEVER WILLIAM C TRS
1650 FOOTHILL DR #702
BOULDER CITY NV 89005-1922

WEST ANITA MAY
9512 RUBY HILLS DR
LAS VEGAS NV 89134-7810

BLUE DIAMOND 1000 TRUST
GRAYSON KENNETH R TRS
2001 SLOW WIND ST
LAS VEGAS NV 89134-6693

LEAKE LIVING TRUST
LEAKE LEE H OR LINDA TRS
7751 W PEBBLE
LAS VEGAS NV 89113-6237

D K B NEVADA TRUST
BEECHUM KIM TRS
HCR-33 BOX 3045
MOUNTAIN SPRINGS NV 89161-9251
STEPHENS EDWARD E & GAYLENE D
KOZAL TOM & ELIZABETH
901 E TROPICANA AVE
LAS VEGAS NV 89119-6611

WILLIAMS MARGARET ANN & DONALD A
HCR-33 BOX 3330
LAS VEGAS NV 89161-9253

FARRINGTON B M QUALIFIED RES TR
FARRINGTON E QUALIFIED RES TR
HCR-33 BOX 3193
LAS VEGAS NV 89161-9252

BAXTER MARK D SEPARATE PPRTY TR
BAXTER MARK D TRS
HCR-33 BOX 3100
MOUNTAIN SPRINGS NV 89161-9252

HARRIS WILLIAM A JR
MICHAUD CATHERINE ISABELLE
3199 MOUNTAIN SPRINGS
LAS VEGAS NV 89146-7915

HARRIS ROBIN Q
18464 STATE HWY #160
MOUNTAIN SPRINGS NV 89124-0000

NOVACK T R & LAVINA
HCR-33 BOX 3110
MOUNTAIN SPRINGS NV 89161-9252

CLARK COUNTY FIRE DEPT
500 S GRAND CENTRAL PKWY
LAS VEGAS NV 89155-0000

HODGKINSON FAMILY TRUST
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LAS VEGAS NV 89161-9250

AZARIA MELVYN & SHIRLEY D
HCR-33 BOX 3190
MOUNTAIN SPRINGS NV 89161-9252

GEARHEART LARRY
P O BOX 230523
LAS VEGAS NV 89105-0523

GRIGGIN TRUST
GRIGGIN LESLIE SCOTT TRS
HCR-32 BOX 3125
LAS VEGAS NV 89124-9807

HRUDICKA LAURA M
HCR-32 BOX 3120
LAS VEGAS NV 89124-9807

VANBETTEN PAUL H SEP PPTY TR
P O BOX 101
BLUE DIAMOND NV 89004-0101

CARRERA TRUST
JOB LARRY TRS
18450 STATE HWY 160
LAS VEGAS NV 89125-0000

BRUTUS TRUST
SCHEeler KORY & ELIZABETH A TRS
9425 BENEDICT DR
MOUNTAIN SPRINGS NV 89124-9144

SPILSBURY JERALD M 2003 TRUST
SPILSBURY BRIAN E TRS
J SPILSBURY
2448 W VALLEY VIEW DR
HURRICANE UT 84737-3028

DEFOREst 9475 BENEDICT DR FAM TR
145 TORCHWOOD LN
LAS VEGAS NV 89144-4290

GANG WILLIAM PAUL
9216 FOREST MANOR CT
LAS VEGAS NV 89134-6088

MEYERS HOLDING COMPANY LLC
BLACKWELL B TRUST
J & M MEYERS
4890 CIMARRON RD
LAS VEGAS NV 89149-4746
TOTI DONNIE
9 PROMONTORY RIDGE DR
LAS VEGAS NV 89135-1670

BERG DAVID IVOR
HCR-89033 BOX 3005
MOUNTAIN SPRINGS NV 89124-0000

WHISSEL FAMILY LLC
HCR 33 BOX 3030
LAS VEGAS NV 89161-9251

HUNTER FAMILY TRUST
HUNTER RICHARD A & M CO-TRS
P O BOX 371448
LAS VEGAS NV 89137-1448

CHAD CHRISTENSEN
NEVADA STATE ASSEMBLYMAN
9101 WEST SAHARA AVENUE SUITE 105
LAS VEGAS, NV 89117-5799

HARRY REID
US SENATOR
333 LAS VEGAS BLVD SOUTH SUITE 8016
LAS VEGAS NV 89101

DINA TITUS
US REPRESENTATIVE
8215 SOUTH EASTERN AVE SUITE 205
LAS VEGAS NV 89123

BOY SCOUTS BOULDER DAM COUNCIL
1135 UNIVERSITY RD
LAS VEGAS NV 89119-6605

USA FOREST SERVICE
550 E CHARLESTON
LAS VEGAS NV 89104-0000

ADD TRIBES FOR PROJECT AREA, Contact Sabra Gilbert-Young (7483) for current contact info

BURKE TIMOTHY M & SHAWNA
HCR-33 BOX 3027
LAS VEGAS NV 89161-9251

SEIP CHARLOTTE S REV LIV TR
SEIP CHARLOTTE S SEIP TRS
HCR 33 BOX 3010
LAS VEGAS NV 89161-9251

MONACO ROBERT & JANET FAMILY TR
MONACO ROBERT S & JANET LEE TRS
HCR-33 BOX 3000
LAS VEGAS NV 89161-9251

VANDENOUDEN MARIA
1 PINION DR
LAS VEGAS NV 89124-0000

DENNIS NOLAN
NEVADA STATE SENATOR
P.O. BOX 82249
LAS VEGAS, NV 89180-2249

JOHN ENSIGN
US SENATOR
333 LAS VEGAS BLVD SOUTH SUITE 8203
LAS VEGAS NV 89101

WALT RULFFES
SUPERINTENDENT
CLARK COUNTY SCHOOL DISTRICT
5100 WEST SAHARA AVE
LAS VEGAS, NV 89146

UNITED METHODIST CHURCH
1550 E MEADOWBROOK AVE
PHOENIX AZ 85014-4040

POTOSI LTD
A BUSTOS
1903 S JONES BLVD #100
LAS VEGAS NV 89146-1260

RED ROCK CITIZENS ADVISORY COUNCIL
PO BOX 267
BLUE DIAMOND NV 89004
MR. CHARLES WOOD
CHAIRMAN
CHEMehUEVl INDIAN TRIBE
PO BOX 1976
HAVASU LAKE CA 92362

MARCIA MAHONE
CHAIRPERSON
LAS VEGAS PAIUTE TRIBE
ONE PAIUTE DRIVE
LAS VEGAS NV 89106

RICHARD ARNOLD
CHAIRMAN
PAHRUMP PAIUTE TRIBE
PO BOX 3411
PAHRUMP NV 89041

DFBRA REED
DIRECTOR
LAS VEGAS INDIAN CENTER
2300 W BONANZA
LAS VEGAS NV 89106

PHIL SWAIN
CHAIRMAN
MOAPA BUSINESS COUNCIL
PO BOX 340
MOAPA NV 89025

JOE KENNEDY
CHAIRMAN
TIMBISHA SHOSHONE TRIBE
PO BOX 206
DEATH VALLEY CA 92328
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1960 CARLA RIDGE
BEVERLY HILLS CA 90210-1844

HOPE DIAMOND LLC
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DIAMOND J-E TRUST
BOGGS JENNIFER B TRS
HCR-33 BOX 2856
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FISHER JARED L & HEATHER L
P O BOX 281
BLUE DIAMOND NV 89004-0281

ZAHNER FAMILY SURVIVOR'S TRUST
ZAHNER EVA JOANNE CO-TRS
16352 WILDFIRE CIR
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7240 W HOMEWOOD
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ROSS ELLEN J TRS
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ERNST PHILIP W TRS
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Mountain Springs

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LEAKE LEE H OR LINDA TRS
7751 W PEBBLE
LAS VEGAS NV 89113-6237

D K B NEVADA TRUST
BEECHUM KIM TRS
HCR-33 BOX 3045
MOUNTAIN SPRINGS NV 89161-9251
BAIR CHRIS ALLEN & LINDA  
SR-42 BOX 3025  
LAS VEGAS NV 89124-0000
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D M PROPERTY HOLDINGS LLC  
K COLE TRS  
P O BOX 94674  
LAS VEGAS NV 89193-4674

S P REVOCABLE LIVING TRUST 1996  
PECK MARGOT A STAPLE TRS  
P O BOX 130  
BLUE DIAMOND NV 89004-0130

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P O BOX 130  
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JENG GRACE  
P O BOX 81110  
LAS VEGAS NV 89180-1110

HENSON WANDA J  
544 CARMELO VALLEY ST  
HENDERSON NV 89012-6119

DEGLMANN DENNIS A  
H C R 33 BOX 3175  
LAS VEGAS NV 89161-9252

THOMPSON DOUGLAS P & NANCY S  
18785 MATER MEA PL  
LAS VEGAS NV 89161-9252

ESPOSITO JOSEPH R FAMILY TRUST  
ESPOSITO JOSEPH R TRS  
230 E LEVI AVE  
LAS VEGAS NV 89183-4641

HOLMAN JONATHAN C & LAURA M  
HCR-33 BOX 3135  
MOUNTAIN SPRINGS NV 89161-9252

HARRAH ROBERT O  
SCHMID LYDIA  
18875 STATE HWY 160  
LAS VEGAS NV 89124-0000

CORNERSTONE TRUST  
3105 SHADOW LEAF CT  
LAS VEGAS NV 89117-3256

KENEHAN JOHN  
8361 JEEVES CIR  
LAS VEGAS NV 89149-4947

M C H TRUST  
HURST MILO C TRS  
P O BOX 61740  
BOULDER CITY NV 89006-1740

HOT ROD FAMILY TRUST  
WELLS GUY M & JODI M TRS  
WELLS CARGO  
7770 W SPRING MOUNTAIN RD  
LAS VEGAS NV 89117-3788

B N DEVELOPMENT LLC  
P O BOX 1976  
DENTON TX 76202-1976

KIMBALL THOMAS E  
GUBLER MARILYN K  
P O BOX 371330  
LAS VEGAS NV 89137-0000

HARRAH ROBERT & TANYA  
SCHMID LYDIA M  
H C R 33 BOX 3361  
LAS VEGAS NV 89161-9253

A C V LB FAMILY TRUST-90  
BUSTOS AUGUSTINE C JR TRS  
2835 S BRONCO ST  
LAS VEGAS NV 89146-5207

HOWE FLETCHER S SR  
P O BOX 270  
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<tr>
<td>Spilsbury Jerald M 2003 Trust</td>
<td>Spilsbury Brian E TRS</td>
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<td>NV</td>
<td>89134-6088</td>
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<tr>
<td>Gang William Paul</td>
<td>9216 Forest Manor Ct</td>
<td>Las Vegas</td>
<td>NV</td>
<td>89124-0101</td>
</tr>
<tr>
<td>Williams Margaret Ann &amp; Donald A</td>
<td>HCR-33 Box 3330</td>
<td>Las Vegas</td>
<td>NV</td>
<td>89161-9253</td>
</tr>
<tr>
<td>FARRINGTON Mark D Separate Ppty TR</td>
<td>FARRINGTON Mark D TRS</td>
<td>HCR-33 Box 3100</td>
<td>NV</td>
<td>89161-9252</td>
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<tr>
<td>HARRIS Robin Q</td>
<td></td>
<td>Mountain Springs</td>
<td>NV</td>
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<tr>
<td>Novack T R &amp; Lavina</td>
<td>CLARK COUNTY FIRE DEPT</td>
<td>Las Vegas</td>
<td>NV</td>
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<td>Hodgkinson Family Trust</td>
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<td>Gearheart Larry</td>
<td>GRIFFIN TRUST</td>
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<td>NV</td>
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<tr>
<td>Hrudicka Laura M</td>
<td>VANBETTEN PAUL H SEP PPTY TR</td>
<td>Blue Diamond</td>
<td>NV</td>
<td>89004-0101</td>
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<tr>
<td>Carrera Trust</td>
<td>BRUTUS TRUST</td>
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<td>Spilsbury Jerald M 2003 Trust</td>
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<td>NV</td>
<td>89144-4290</td>
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<tr>
<td>Gang William Paul</td>
<td>MEYERS HOLDING COMPANY LLC</td>
<td>Las Vegas</td>
<td>NV</td>
<td>89149-4746</td>
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</tbody>
</table>
TOTI DONNIE
9 PROMONTORY RIDGE DR
LAS VEGAS NV 89135-1670

BURKE TIMOTHY M & SHAWNA
HCR-33 BOX 3027
LAS VEGAS NV 89161-9251

BERG DAVID IVOR
HCR-89033 BOX 3005
MOUNTAIN SPRINGS NV 89124-0000

SEIP CHARLOTTE S REV LIV TR
SEIP CHARLOTTE S SEIP TRS
HCR 33 BOX 3010
LAS VEGAS NV 89161-9251

WHISSEL FAMILY LLC
HCR 33 BOX 3030
LAS VEGAS NV 89161-9251

MONACO ROBERT & JANET FAMILY TR
MONACO ROBERT S & JANET LEE TRS
HCR-33 BOX 3000
LAS VEGAS NV 89161-9251

HUNTER FAMILY TRUST
HUNTER RICHARD A & M CO-TRS
P O BOX 371448
LAS VEGAS NV 89137-1448

VANDENOUDEN MARIA
1 PINION DR
LAS VEGAS NV 89124-0000

POTOSI LTD
A BUSTOS
1903 S JONES BLVD #100
LAS VEGAS NV 89146-1260
General information about the project can be obtained from Adam Searcy, NDOT Project Manager, at (775) 888-7597, by e-mail to asearcy@dot.state.nv.us, or by mail to Adam Searcy, Project Manager, Nevada Department of Transportation, 1263 S. Stewart St., Carson City, NV 89712.

NOTE: Reasonable efforts will be made to assist and accommodate physically handicapped persons desiring to attend the meeting. Requests for auxiliary aids or services to assist individuals with disabilities or limited English proficiency should be made with as much advance notice as possible to Julie Maxey, Nevada Department of Transportation, Public Hearings Officer, at (775) 888-7171 or jmaxey@dot.state.nv.us.

IF RIGHT-OF-WAY IS NEEDED: The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 will govern the acquisition of right-of-way that may be necessary for this project. More detailed information regarding right-of-way can be obtained from the NDOT’s Right of Way Division, 1263 S. Stewart St., Carson City, NV 89712, or by calling (775) 888-7480.
The Nevada Department of Transportation (NDOT), in cooperation with the Federal Highway Administration (FHWA), will conduct a public information meeting to receive input on the environmental phase for State Route 160, also known as Blue Diamond Road, between State Route 159 to Mountain Springs. NDOT is seeking to make improvements on this stretch of highway, and we need your input as we move forward with the environmental phase associated with the preliminary design. The environmental phase weighs proposed improvements against the potential impacts they may have on the surrounding area.

In compliance with the National Environmental Policy Act (NEPA) of 1969, NDOT is continuing its assessment of the proposed project's potential environmental impacts. The purpose of the project is to improve operational efficiency and safety in response to existing and proposed development.

Please attend our public information meeting to let us know what you think about improving this highway.
Team Members Present: Jim Caviola (CA Group)
Stephen Wyszomirski (CA Group)
Cheryl Cote (BLM Reality Specialist)
John Evans, (BLM NEPA Lead)
Kelly Turner, (USFS Cultural Resources)

Team Members on Phone: Adam Searcy (NDOT / Project Management)
Ben Goldsworthy (CH2M Hill)
Dan Dupies (CH2M Hill)
Donald Naquin (NDOT Environmental)
Susan Slaughter (NDOT Cultural Resources)
Mike Myers (Aztec Engineering)

Discussion Items

Jim Caviola, Dan Dupies and Ben Goldsworthy presented PowerPoint.

Jim reviewed project background.

Both BLM and USFS are cooperating agencies for the project. Dan discussed the MOU between NDOT and BLM/USFS and if this covered FHWA work. BLM has an existing general (non-project specific) MOU in place with NDOT. John Evans, BLM, will check with Field Services Supervisor to determine if any additional documentation such as a project specific MOU or revised cooperating agency letter is needed. Kelly Turner, USFS will check with the new District Ranger to see if a project specific MOU is needed or a new cooperating agency letter with the new District Ranger’s signature is needed.

The group discussed the class of NEPA document for the project. It was agreed that an EA is the appropriate class at this time since this is not regarded as a major widening. That could change if the project is deemed to have significant environmental impacts. A decision record may be needed by both agencies beyond the completed EA and FONSI. Both agencies will decide whether a decision document is necessary. For the decision record, BLM is considered the “lead cooperating agency” while USFS follows BLMs lead.

Both BLM and USFS prefer to review the independent sections of the EA (Purpose and Need, Alternatives, Affected Environment, etc.) as they are developed and not wait until the draft EA document. Both BLM and USFS would like to review the technical study reports.

BLM and USFS indicated that the project team can access their property for casual use to conduct the required surveys. If the team liked, prior to conducting non-ground disturbing field activities outside of NDOT right-of-way, they could request casual use letters that indicate permission, details of casual use, and specific dates. Ground disturbing activities would be treated on a case-by-case basis, depending on the type of activity.

It was noted that an improved 4-lane section of roadway would improve existing deficiencies, such as straightening curves, which may require some BLM and USFS land. The agencies noted that providing a
straighter roadway would increase speeds through the corridor, which can cause additional crashes. Jim noted that the project could be constructed in two portions, the flat area and the mountainous area. He added that traffic will be maintained in both directions during construction.

Mike Meyers asked the agencies if, outside of the known species of concern, there were any additional sensitive species in the project area that needed to be addressed. The agency representatives said to check with the appropriate biological staff person, but most species are located near Mount Charleston. Kelly Turner will provide contact information for USFS biologist; John will provide contact information for BLM biologist. It was determined that for the work Mike plans to perform in the field, a casual use letter would suffice. Mike noted the desert tortoise survey will likely begin in late April. He will also conduct a noxious weed assessment.

In regards to cultural resources it was noted that Suzan Slaughter previously conducted surveys in the study area. The agencies noted that the ring rock area is a pristine site and will be the biggest challenge to avoid. The Old Spanish Trail is adjacent to the project area but appears to be obliterated at NDOT’s right-of-way.

Dan reviewed land use issues for the project. Kelly will check with the USFS NEPA lead on the appropriate resource management plan for use in the EA analysis. The Toiyabe National Forest Land and Resource Management Plan should be the appropriate USFS document. John will confirm which BLM resource management plans are appropriate, Red Rock Canyon National Conservation Area Resource Management Plan and the 1998 Las Vegas Resource Management Plan (currently being revised).

Kelly indicated that there have been a number of big horn sheep that have been spotted by local area residents attempting to migrate across the road in the Mountain Springs area on the west end of the project, she was not sure if this is an issue that needed to be reviewed or not. It was also pointed out that there have been a number of wild horse/burrow related crashes. John will check with BLM horse and burrow specialist.

A Project Information Meeting will take place on March 29th. The group noted that the project team should make sure to keep the residents of Mountain Springs in the loop in regards to project happenings. Consultation with local Tribes will take place as part of the project’s public outreach.

Both BLM and USFS felt it would be good to meet after the development of purpose and need.
Subject: SR 160 Improvements Project: SR 159 to Mountain Springs, Clark County, NV Request for Cooperating Agency Participation

Mary Jo Rugwell, District Manager
Bureau of Land Management, Southern Nevada District
4701 N. Torrey Pines Drive
Las Vegas, Nevada  89130

Dear Ms. Rugwell:

The Federal Highway Administration (FHWA) in cooperation with the Nevada Department of Transportation (NDOT) has begun the NEPA process for widening State Route 160 between the junction with State Route 159 to 1.24 miles west of Mt. Springs, Clark County, Nevada (see enclosed map). As lead agency, FHWA is requesting you to be a cooperating agency because the project passes through approximately seven miles of Bureau of Land Management (BLM) administered lands and may require the acquisition of additional right-of-way.

The purpose of the project is to improve operational efficiency and safety in response to existing and proposed development within the Las Vegas and Pahrump Valleys. SR 160 serves the Las Vegas Valley as the primary transportation link between Pahrump and southwest Las Vegas and Interstate 15.

Your agency’s involvement should entail those areas under its jurisdiction or expertise and no direct writing or analysis will be necessary for preparation of the document. The following are activities we will take to maximize interagency cooperation:

- Invite you to coordination meetings
- Consult with you on any relevant technical studies that will be required for the project
- Organize joint field reviews
- Provide you with project information, including study results
- Encourage your agency to use the process to express your views on subjects within your jurisdiction or expertise
- Include information in the project environmental document that Cooperating Agencies may need to discharge their National Environmental Policy Act (NEPA) responsibilities
and any other requirements regarding jurisdictional approvals, permits, licenses, and/or clearances.

You have the right to expect that the environmental document will enable you to discharge your jurisdictional responsibilities. Likewise, you have the obligation to tell us if, at any point in the process, your needs are not being met. We expect that at the end of the process, the environmental document will satisfy your NEPA requirements including those related to project alternatives, environmental consequences, and mitigation. Further, we intend to utilize this document and the subsequent approval as our decision making document and as the basis for the acquisition application.

We look forward to your response to this request and your role as a Cooperating Agency on this project. We ask that you please respond in writing with your agency’s commitment as a Cooperating Agency, a point of contact, specific issues, relevant information, and review requirements by September 30, 2010. If you have any questions or would like to discuss in more detail the project or our agencies’ respective roles and responsibilities during the completion of this process, please contact Mr. Del Abdalla, Environmental Program Manager, 705 N. Plaza, Suite 220, Carson City, Nevada 89701, telephone: (775) 687-1231, email: Abdelmoez.Abdalla@dot.gov.

Sincerely,

Abdelmoez A. Abdalla  
Environmental Program Manager

Enclosure

cc: Chris Young, NDOT  
   Adam Searcy, NDOT

ecc: xxxx
Abdelmoez Abdalla, Environmental Programs Manager
U.S. Department of Transportation
Federal Highway Administration
705 N. Plaza Street, Suite 220
Carson City, Nevada  89701-0602

Re: HENV-NV

Dear Mr. Abdalla:

The Southern Nevada District Office of the Bureau of Land Management (BLM) would like to thank the Department of Transportation for the invitation for Cooperating Agency status on the SR 160 Improvements Project National Environmental Policy Act (NEPA) process. We will accept the invitation and look forward to working with you on this project.

BLM's areas of concern on this project will be the right-of-way of SR 160 on BLM-administered land and compliance with the Red Rock Management Plan.

Our point of contact for this project will be Cheryl Cote, Realty Specialist, Las Vegas Field Office. Cheryl can be contacted at 702-515-5104 or Cheryl_Cote@blm.gov.

Sincerely,

Mary Jo Rugwell
District Manager
Call To: Krystal Jackson (BLM, Wild Horse & Burro Specialist)

Phone No.: (702) 515-5171

Date: 8-23-12

Call From: Dan Dupies Time: 1:40 p.m.

Message Taken By:

Subject: Wild horse and burro movement corridors in the SR 160 corridor

Project No.: After briefly describing the location of the study area and the proposed improvements, I asked Krystal about burro and wild horse movements across SR 160. She noted that after the large fires about 6 years ago, the BLM rounded up the wild horses and moved them to the south end of the herd management area, well away from the study area. Krystal said that normal foraging and seeking water takes the burros to both sides of SR 160. She said the existing fencing along the corridor has done a good job of limiting the crossing. Rarely does she receive calls because burros are on the highway. Krystal said that burros regularly use the large culvert at the Late Night Trailhead to cross the highway. Krystal said it is particularly important to keep the burros off the highway because at night their dusky color and the fact that their eyes do not reflect light like other large mammals make them difficult to see.

In the flatter area west of the Late Night Trailhead, Krystal said it would be beneficial if another culvert like the one at the trailhead were constructed to allow burro crossing. She said it would also be helpful to post sign alerting drivers to the areas were burros could cross SR 160. Krystal did not think the proposed SR 160 improvements would adversely affect an existing movement corridor(s) for burros.

I asked her about Bighorn Sheep. She directed me to Emilia Savage (BLM’s Red Rock biologist).
Call To: Amilia Savage (BLM Biologist Red Rock Conservation Area)

Phone No.: (702) 515-5278

Date: 8-23-12

Call From: Dan Dupies Time: 2:15 p.m.

Message Taken By:

Subject: Big Horn Sheep movement corridors in the SR 160 corridor

Project No.:

After briefly describing the location of the study area and the proposed improvements, I asked Amilia about Bighorn Sheep movements across SR 160. She said that because of the design of the fencing (3 top strands barbed wire, smooth strands below) it allows the sheep to “cross through” the fencing. She noted that in some places at the higher elevations around Mountain Springs there may not be fencing or the sheep are able to avoid by the way they move through the mountain side. Amilia said the sheep would use both sides of SR 160 for foraging, finding springs, and during the lambing season. She said that the BLM website identifies sheep habitat areas. When I asked her whether the BLM maintains information about herd size she said she would check with the BLM’s Big Game unit for more information. Amilia did not see the proposed SR 160 improvements as posing a barrier to sheep continuing to cross SR 160. She noted the tortoise as another species of concern in the study area and mentioned BLM’s list of sensitive species. I told Amilia that the project’s biologist conducted a survey of the corridor in spring and is in the process of completing an appended Biological Assessment (BA). She asked whether she could receive a copy of the final BA.
From: Kirk, James L [mailto:kirk@blm.gov]
Sent: Thursday, August 30, 2012 11:26 AM
To: Dupies, Dan/MKE
Cc: Spencer, Mark R; McAbey, Robbie J; Cannon, Kirsten
Subject: RE: Impacts on BLM property

Dan,

If the proposed State Route 160 widening stays within the current ROW, the project should not have an effect on the existing Cottonwood Valley Trail System except for the temporary closure of the culverts and access routes to the trailheads. The BLM would need to know when and how long the temporary closures would occur, so we could post the closures and notify the affected users. Temporary access routes to the trailheads during the closure would be the ideal alternative. Please keep me informed of the project status. Can you also please send me the contact information for NDOT lead for this project?

Thanks,

Lee Kirk
Supervisory Outdoor Recreation Planner
Red Rock Sloan Field Office
4701 N. Torrey Pines Drive
Las Vegas, NV 89130
Office: 702-515-5227

From: Dan.Dupies@CH2M.com [mailto:Dan.Dupies@CH2M.com]
Sent: Wednesday, August 29, 2012 8:29 AM
To: Kirk, James L
Cc: Benjamin.Goldsworthy@CH2M.com; James.Caviola@c-agroup.com
Subject: FW: Impacts on BLM property

Lee, I think you will find the attached files helpful in answering questions that you posed yesterday during our conversation. The “trailhead locations” file shows an aerial view of the trailheads we discussed yesterday and the SR 160 “underpasses” serving the trailheads. The other three files show the proposed work at the trailhead driveways and the box culverts.

As you can see on the three plan set files, the driveways serving the trailheads will be reconstructed as part of the road reconstruction. There will not be any physical impact to the parking area, but again the driveway connection to SR 160 will be reconstructed. The BLM should expect that the driveways would be closed during reconstruction. Although it is difficult to place an exact time on how long a driveway could be closed, upwards of a week is certainly possible. I would note that providing temporary access to the trailheads during driveway reconstruction is possible.

The three plan set files also show that the box culverts serving each trailhead will be extended, but the height will not change. The BLM should expect that during construction to extend the box culverts they would be closed to biker/hiker use. As you can see, there will be no impacts to the trails outside of the right-of-way. Within the right-of-way, bikers and hikers exiting the extended box will be able to access the trail without any improvements required.

Dan Dupies
Project Planner
414-847-0206
From: Kirk, James L [mailto:jkirk@blm.gov]
Sent: Wednesday, August 29, 2012 4:08 PM
To: Bentzler, Zachary/MKE
Subject: RE: Public Grazing

There is not.

Thanks,

Lee

From: Zachary.Bentzler@ch2m.com [mailto:Zachary.Bentzler@ch2m.com]
Sent: Wednesday, August 29, 2012 1:42 PM
To: Kirk, James L
Subject: Public Grazing

Hello Lee - I am working with Dan Dupies and Ben Goldsworthy on the SR 160 project. Do you know if there is agricultural grazing on public lands taking place adjacent to SR 160 within or near our project area? Our sense is that there is not.

Thanks,

Zach Bentzler
Transportation Planner
CH2M Hill
135 South 84th Street, Suite 400
Milwaukee, WI 53214
Office- 414.847.0253
Fax-414.272.4408
In Reply Refer To:
1795 (NVS0200)

Certified Receipt No.: 9171 9690 0935 003 7303 21

James Caviola, P.E. PTOE
CA Group, Inc.
2785 S. Rainbow Blvd
Las Vegas NV 89146-4008

Dear Mr. Caviola:

The Bureau of Land Management (BLM) Red Rock/Sloan Field Office, as a cooperating agency, has received a copy of the draft SR 160 Corridor Improvement: SR 159 to Mountain Springs Environmental Assessment. Enclosed with this letter are our office’s comments concerning the project. In addition, our office has the following concerns:

1) The BLM is in agreement that the significant rock-ring site situated to the south of the alignment between Mileposts 13 and 14 should be avoided.

2) The potential Scenic Overlook to the west of Milepost 17 will likely lead to an increase of use by mountain bikers and boulder/rock climbers in the area near Sandstone Bluff Wash. The pullout would be located near sensitive archaeological sites, including the Old Spanish Trail. Currently, the BLM has closed the road situated immediately to the north of the Nevada Department of Transportation (DOT) Right-of-Way.

While the environmental document is available for public review and comment, the BLM wishes to extend the opportunity to host a public meeting here at the Red Rock Canyon National Conservation Area Visitor’s Center during one of the BLM’s Public Open Houses, which are normally scheduled on the third Thursday of each month.

Our office appreciates the opportunity to comment and to cooperatively work with Nevada DOT and Federal Highway Administration to complete the project.

Sincerely,

[Signature]

Robbie McAbey
Assistant Field Manager

Enclosure
<table>
<thead>
<tr>
<th>Comment No.</th>
<th>Chapter/Page Number/Section</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chapter 3 / page 3-1 / 3rd paragraph</td>
<td>Big Dune is listed as a Special Recreation Management Area in the alternative 2 table, but it is not on the alternative 2 map. Should Big Dune be added to the alternative 2 map or removed from the text?</td>
</tr>
<tr>
<td>2</td>
<td>Chapter 3 / page 3-22 / 3.10.1 1st paragraph</td>
<td>Sagebrush is not within the Mojave Desert Scrub Habitat. It is found in higher elevations of pinon-juniper.</td>
</tr>
<tr>
<td>3</td>
<td>Chapter 3 / page 3-23 / 3.10.1 Federally Listed Species: 2nd paragraph</td>
<td>It states that suitable desert tortoise habitat was determined through the USGS habitat model. Did you use 0.5-1.0?</td>
</tr>
<tr>
<td>4</td>
<td>Chapter 3 / page 3-26 / Table 3-5</td>
<td>Wildlife and vegetation should be in separate sections and analyzed separately.</td>
</tr>
<tr>
<td>5</td>
<td>Chapter 3 / page 3-26 / Table 3-5</td>
<td>As of 2011, Spring Mountain acastus checkerspot is no longer a BLM sensitive species</td>
</tr>
<tr>
<td>6</td>
<td>Chapter 3 / page 3-29 / Table 3-6</td>
<td>The full minimization measures are not listed in the appended BO response in Appendix A. Could you please include these measures, so that they are transparent? I would also like to see a copy of these measures that were proposed in the append application. Will the work areas be cleared and fenced? If a tortoise is found in the cleaning process, where will it be translocated?</td>
</tr>
<tr>
<td>7</td>
<td>Chapter 3 / page 3-30 / 1st paragraph</td>
<td>Will you also adhere to terms and conditions set forth by the BLM?</td>
</tr>
<tr>
<td>8</td>
<td>Chapter 3 / page 3-30 / 1st paragraph</td>
<td>Can you clarify why the tortoise fencing is from MP 12.15 to 17.94, while the tortoise habitat is from MP 11 to 18.5?</td>
</tr>
<tr>
<td>9</td>
<td>Chapter 3 / page 3-30 / 3.11.1</td>
<td>Wild horses and burros are not wildlife. They should be a section of their own.</td>
</tr>
<tr>
<td>10</td>
<td>Chapter 3 / page 3-31 / Generalist Species</td>
<td>Underbirds please fix: blue-grey gnatcatcher and common poorwill</td>
</tr>
<tr>
<td>11</td>
<td>Chapter 3 / page 3-32 / 1st paragraph</td>
<td>Again, place any text about burros in its own section.</td>
</tr>
<tr>
<td>12</td>
<td>Chapter 3 / page 3-32 / 1st paragraph</td>
<td>The barrier median could easily trap smaller wildlife including lizards and rodents (Alternative 1 does not say how high the median will be).</td>
</tr>
<tr>
<td>13</td>
<td>Chapter 3 / page 3-32 / 3.11.3 2nd paragraph</td>
<td>Place measures about wild horse and burro into its own section.</td>
</tr>
<tr>
<td>14</td>
<td>Chapter 3 / page 3-32 / 3.11.3 3rd paragraph</td>
<td>BLM and NDOFW consider the avian nesting season to be from Feb. 15th through August 31st.</td>
</tr>
<tr>
<td>15</td>
<td>Chapter 3 / page 3-32 / 3.11.3 4th paragraph</td>
<td>An appropriately-sized buffer around an active nest (depending upon species) will be maintained until birds fledge.</td>
</tr>
<tr>
<td>16</td>
<td>Chapter 3 / page 3-40 / T&amp;E</td>
<td>Indirect impacts may include accidental human encounters, trash dumping that may bring in ravens and coyotes that prey on hatchings or sub-adult tortoises, etc.</td>
</tr>
<tr>
<td>17</td>
<td>Chapter 3 / page 3-40841 / Wildlife</td>
<td>Place burro information into its own section</td>
</tr>
<tr>
<td>18</td>
<td>Chapter 3 / page 3-42 / 3.16</td>
<td>Very minimal cumulative impacts section. What previous and ongoing projects have occurred in the area? Are there trends for activities and impacts in the area due to project implementation?</td>
</tr>
<tr>
<td>Comment No.</td>
<td>Chapter/Page Number/Section</td>
<td>Comment</td>
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<td>-----------------------------</td>
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</tr>
<tr>
<td>(example)</td>
<td>Chapter 2/page 45/REC-16</td>
<td>Big Dune is listed as a Special Recreation Management Area in the alternative 2 table, but it is not on the alternative 2 map. Should Big Dune be added to the alternative 2 map or removed from the test?</td>
</tr>
<tr>
<td>1</td>
<td>Chapter 2/page 2-12 Table 2</td>
<td>Proposed design speed of alignment of 75 MPH seems higher than it needs to be especially as use of the Conservation Area and related turns would also increase.</td>
</tr>
<tr>
<td>2</td>
<td>Chapter 2/exhibit 2-2 Common Alignment East of Mountain Springs</td>
<td>The proposed Scenic Overlook (approx mile 17.5) would provide a &quot;parking area&quot; which is very close to wilderness and current disturbances, and archeological sites. The more logical view is on the south side of the highway as this is the first &quot;view&quot; of Las Vegas and the Conservation Area for those traveling east. Also the curve in the tower map (Approx Mile 13.3) has become a popular parking area for those accessing the MT bike trails. The alignment should either discourage this area or provide alternative access trails in the area on the North side.</td>
</tr>
<tr>
<td>3</td>
<td>Chapter 2/exhibit 2-9 Preferred Alternative-four lanes w/Center Median</td>
<td>Pinyon Drive is also popular for hikers, and some MT. Bikers. Reducing it's size would reduce unwanted impact on the wilderness in RRCNCA. It may also increase usage of alternative areas such as Williams Ranch Road, where there are no access at this point. This also leads to a sensitive riparian area not shown on the map. The Eastern U-Turn also appears to be in an unsafe location with a winding narrow canyon area. Has the Mt Potosi Canyon Road been studied to be a turn around area instead?</td>
</tr>
<tr>
<td>4</td>
<td>Chapter 3/Page 3-18, Line 21 &amp; 22</td>
<td>The triple cell at MP 15.73 and Duet cell at MP 16.53 both have trails which use the culverts to access underneath SR 160.</td>
</tr>
<tr>
<td>5</td>
<td>Chapter 3/Page 3-37, line 14</td>
<td>Equestrian use is not mentioned in this study for this area. However both the Late Night and Cottonwood Valley access areas were designated for equestrian use. Traveled rigs do require a longer stopping, turning, and parking distance and should be taken into consideration. Also this is one of the few areas where OHV use is permitted on designated roads and should be mentioned.</td>
</tr>
<tr>
<td>6</td>
<td>Chapter 3.18 Cumulative impact analysis</td>
<td>Future growth of residential, including Blue Diamond area and withdrawn areas should be included in C11A.</td>
</tr>
<tr>
<td>7</td>
<td>Chapter 3, exhibit 3-19 Cottonwood Valley Trail System</td>
<td>Map should be replaced with RMP map of designated trails as some of the ones shown are not designated.</td>
</tr>
</tbody>
</table>
Subject: SR 160 Improvements Project: SR 159 to Mountain Springs, Clark County, NV
Request for Cooperating Agency Participation

Stephanie Phillips, Deputy Forest Supervisor
Spring Mountains National Recreation Area
United States Forest Service
4701 N. Torrey Pines Drive
Las Vegas, Nevada  89130-2301

Dear Ms. Phillips:

The Federal Highway Administration (FHWA) in cooperation with the Nevada Department of Transportation (NDOT) has begun the NEPA process for widening State Route 160 between the junction with State Route 159 to 1.24 miles west of Mt. Springs, Clark County, Nevada (see enclosed map). As lead agency, FHWA is requesting you to be a cooperating agency because the project passes through United States Forest Service (USFS) administered lands and may require the acquisition of additional right-of-way.

The purpose of the project is to improve operational efficiency and safety in response to existing and proposed development within the Las Vegas and Pahrump Valleys. SR 160 serves the Las Vegas Valley as the primary transportation link between Pahrump and southwest Las Vegas and Interstate 15.

Your agency’s involvement should entail those areas under its jurisdiction or expertise and no direct writing or analysis will be necessary for preparation of the document. The following are activities we will take to maximize interagency cooperation:

- Invite you to coordination meetings
- Consult with you on any relevant technical studies that will be required for the project
- Organize joint field reviews
- Provide you with project information, including study results
- Encourage your agency to use the process to express your views on subjects within your jurisdiction or expertise
• Include information in the project environmental document that Cooperating Agencies may need to discharge their National Environmental Policy Act (NEPA) responsibilities and any other requirements regarding jurisdictional approvals, permits, licenses, and/or clearances.

You have the right to expect that the environmental document will enable you to discharge your jurisdictional responsibilities. Likewise, you have the obligation to tell us if, at any point in the process, your needs are not being met. We expect that at the end of the process, the environmental document will satisfy your NEPA requirements including those related to project alternatives, environmental consequences, and mitigation. Further, we intend to utilize this document and the subsequent approval as our decision making document and as the basis for the acquisition application.

We look forward to your response to this request and your role as a Cooperating Agency on this project. We ask that you please respond in writing with your agency’s commitment as a Cooperating Agency, a point of contact, specific issues, relevant information, and review requirements by September 30, 2010. If you have any questions or would like to discuss in more detail the project or our agencies’ respective roles and responsibilities during the completion of this process, please contact Mr. Del Abdalla, Environmental Program Manager, 705 N. Plaza, Suite 220, Carson City, Nevada 89701, telephone: (775) 687-1231, email: Abdelmoez.Abdalla@dot.gov.

Sincerely,

Abdelmoez A. Abdalla
Environmental Program Manager

Enclosure

cc:   Chris Young, NDOT
      Adam Searcy, NDOT

ecc:  xxxx
Mr. Abdelmoez A. Abdalla
Environmental Program Manager
Nevada Devision
USDOT, Federal Highway Administration
705 N Plaza Street, Suite 220
Carson City, NV 89701-0602

Dear Mr. Abdalla,

We have received your September 3, 2010 request (HENV-NV) for US Forest Service cooperating agency status on the State Route (SR) 160 Improvements Project from SR 159 to 1.24 miles west of Mountain Springs, Clark County, Nevada.

We accept your invitation to be a cooperating agency for the NEPA process related to this project. I have designated Kelly Turner, Spring Mountains NRA Archeologist, to act as our representative for relevant matters associated with potential project impacts affecting National Forest System lands. Kelly can be reached at (702) 515-5424 or by email at kellyturner@fs.fed.us.

The proposed project may impact sensitive cultural and biological resources on National Forest System (NFS) lands. The project may also require granting additional rights-of-way across NFS lands. The NEPA document will need to address these potential concerns. Also, please be advised that our agency will only consider granting additional rights-of-way widths which are necessary for the construction, operation and maintenance of the highway facility proposed for this specific improvement project.

Sincerely,

[Signature]

STEPHANIE A. PHILLIPS
Deputy Forest Supervisor

cc: Kelly Turner
I am not aware of any issues that would affect this project. Carol

Carol Reott Hotchkiss
Acting Recreation Staff Officer
US Forest Service
Spring Mountains National Recreation Area
Las Vegas, Nevada
702-515-5440 office
chotchkiss@fs.fed.us

I appreciate your input. Please know that we will likely use your e-mail as proof of coordination on the Section 4(f) issue. If you or Jan would like to revise the message below for any reason (I’m not suggesting it needs to be revised), please do so and send it to me. If I do not hear from you, we will proceed with the understanding that your agency does not think there are Section 4(f) resources along the SR 160 route on USFS land and therefore the SR 160 preferred alternative will affect any Section 4(f) resources on your property. If something surfaces as a result of NDOT’s cultural resources investigation, NDOT will coordinate with you on their findings. Again, thanks for your input.

Dan Dupies
Project Planner
414-847-0206

Hi Dan,

I am including Carol Hotchkiss, our acting Recreation Staff officer and Jan Schumacher, our NEPA expert, on this as well. As far as I know, the section of 160 that runs through Forest Service land is not actively used for recreational purposes except to pass through it to get to Lovell Canyon or into Mountain Springs. Carol or Jane, chime in if you know of any use. The small section of Spanish Trail that was found on Forest Service land has probably been obliterated by the current highway so there isn’t really anything to worry about there.

I hope that helps. Let me know if you have any other questions.
Let me reintroduce myself. I am with CH2M HILL, and we are part of the CA Group team who is conducting the SR 160 Corridor Study under contract to NDOT. CH2M HILL is preparing the Environmental Assessment (EA) for the study. As part of the EA we have to identify any recreational uses in the study area and determine whether they are protected under the provisions of Section 4(f). We are aware of the Old Spanish Trail and the mountain bike trails on BLM property. While we view the BLM's property as mixed use rather than being primarily for recreation, we want and need your input on this issue. We can either discuss this issue in a call or you can send me your thoughts in an e-mail. If you prefer a call, please give me a few days and times that work for you and I will arrange a call.

Thanks in advance for your assistance on this issue.

Dan Dupies
Project Planner
414-847-0206

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From: "Turner, Kelly -FS" <kellyturner@fs.fed.us>
Date: August 15, 2013, 4:02:35 PM PDT
To: James Caviola <James.Caviola@c-agroup.com>
Cc: "Swick, Randy -FS" <rswick@fs.fed.us>
Subject: RE: SR 160 Project - Roadway Lighting USFS Coordination

Thanks Jim for your kind thoughts.

I went through the few comments back I got and adding my own two cents, it seems like the biggest concern is how the lights will affect the night sky and just how many lights are going to be used.

Our NEPA person summed it up best

"After a cursory look at the attached documents, it looks like the lighting they propose to install has "BUG (Backlight-Uplight-Glare) ratings that are equivalent to a full cut-off classification which will help mitigate sky glow, light trespass and glare," and they are going to install lights only at the conflict points, rather than throughout the intersection. So this could address protection of the night sky resource."

So long as this is the case I think that will address the concerns we have. The main concern was that there were going to be lights installed along the entire length of the road between Mountain Springs and Las Vegas and that was seen as major overkill and that the lights were going to shine upward which effects the night sky aspect. Las Vegas does enough to pollute the night sky that it doesn't seem like a good idea to add to the problem.

Let me know if you need anything else.

Kelly

------------------
Kelly Turner
District Archaeologist
Spring Mountains National Recreation Area
Las Vegas, NV 89130
Office: 702-515-5424
Fax: 702-515-5499

-----Original Message-----
From: James Caviola
Sent: Tuesday, July 16, 2013 7:46 PM
To: Turner, Kelly
Subject: Re: SR 160 Project - Roadway Lighting USFS Coordination
Kelly, I received your telephone message. There is no problem in taking a few weeks to review the material we sent you. We will look for you feedback by the end of the month. Please let me know if you have any questions. Regards, Jim

On Jul 12, 2013, at 10:55 AM, "James Caviola" <James.Caviola@c-agroup.com> wrote:

Kelly, based on our conversation earlier today I am sending you the following:

1. Photos of the NDOT light poles currently in place on US 93 at the Lake Mead National Recreation Area entrance

2. Information on the lighting fixtures (both GE and CREE)

3. Information on NDOT’s standard pole (t30 1 10)

4. An exhibit that indicates the location of the lights along the corridor

5. Preliminary verbiage regarding roadway lighting and intelligent transportation infrastructure (ITS) that is being added to the EA

Please let me know if you need anything else or if you have any questions.

Regards.

Jim

James Caviola, P.E.
C. A. Group, Inc.
702.685.5945 Office
702.685.5947 Fax
702.418.6822 Mobile
2785 S Rainbow Blvd
Las Vegas, NV 89146
WWW.C-Agroup.com

<NDOT Streetlight Intersection.JPG>
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Hi Jim,

I only got comments back about the EA from our botanist so I’m just going to put them in an email back to you. I also have a few of my own but on the whole it looks pretty good.

Our Botanist wrote

- In biological sections for the EA and appendices, there are numerous mis-spellings of scientific names. Please review and correct as this reflects poorly on the biological input.
- *Juniperus californica* is not known to occur in Nevada north of the Newberry Mountains, which are considerably south of the Spring Mountains. The Spring Mountains have been thoroughly botanized and this species has yet to be reported here.
- Please include in our response that we request a copy of the contractor’s noxious weed management plan as the only actions reference a plan will be required.

For my part

On page 3-37, line 24 The SMNRA covers 316,000 acres not the 314,500 that is listed.

One line 27-29. While it is true the BLM managed some of the areas that make up the SMNRA now, they did not manage the whole thing. The Charleston Reserve was created in November 1906 as a Forest Service area and consisted of 149,165 acres. The size and names of the area managed by the Forest Service has changed at least 7 times.

1. 1908 the Charleston Reserve and Vegas National Forest Combined to make the Moapa National Forest and comprised of 345,005 acres.
2. 1908 the Charleston Reserve and Vegas National Forest Combined to make the Moapa National Forest and comprised of 345,005 acres.
3. JULY 1, 1915, Moapa National Forest combined with the Toiyabe National Forest
4. May 10, 1916, The Moapa Division is transferred to the Dixie National Forest
5. 1918, BLM acquired land when Sheep Mountain unit and a large portion of the Charleston Mountain unit are removed from the Dixie National Forest
6. 1937, Charleston Mountain Unit transferred to the Nevada National Forest.
7. 1957, Nevada National Forest eliminated and transferred to the Humboldt-Toiyabe National Forest as the Las Vegas District with 62,218 acres
8. 1993, Designated as a National Recreation Area with more than 316,000 acres (actually reacquired some of the land that had started out as Forest Service but was transferred over to BLM in 1918.)

That’s pretty much it. As far as I’ve been able to see, you guys have done a really good job coordinating with everyone to address everything possible. I’ve had a good time working with Sue Slaughter and everyone on this project and am pretty comfortable with the direction you are going on the Forest Service land you will be crossing.

Let me know if you need anything else.

Kelly

_________________________________________________________
Kelly Turner
District Archaeologist
Spring Mountains National Recreation Area
4701 North Torrey Pines Drive
Las Vegas, NV 89130
Office: 702-515-5424
Fax: 702-515-5499
Hi Dan!

As per our conversation on Monday – Ephemeral drainages along SR 160 draining into the Las Vegas Valley and ultimately to Las Vegas Wash will most likely be considered jurisdictional waters under Sectin 404 of the Clean Water and will require a permit. Typically, if flow is maintained through the drainage, such as a culvert installation or extension, then no mitigation is required.

Please let me know if I can be of further assistance.

Patricia L. McQueary
Senior Regulatory Project Manager
USACE St. George Regulatory Office
Office hours: Monday through Thursday, 6:30 am to 5:00 pm (MST)
Call To: Pat McQueary, USACE, Sacramento District - St. George Office

Phone No.: 435-986-3979                   Date: 9-17-12

Call From: Dan Dupies                Time: 4:15 p.m.

Message Taken By:

Subject: Impacts to Waters of the US (SR 160)

Project No.: 431694.A1.EN.04.04

I called Pat to discuss potential impacts to waters of the US on the SR 160 project. I noted that NDOT was interested in an estimate of the project’s impacts to waters of the US and I wanted to hear from Pat the threshold for moving from a nationwide permit and an individual permit. After I reminded Pat about the proposed SR 160 and the presence of an east and west wash, Pat initially noted that any impact below 0.5 acre would qualify for a nationwide permit. She went on to note that impacts over 0.5 acre could be handled by a Letter of Permission, which is different than an individual permit in that it does not have to go out for public notice.

Pat then stated that a linear project like SR 160 would likely be handled by a Nationwide Permit 14. When I questioned Pat about the 0.5 acre limit, Pat stated further that the COE would likely view each box culvert crossing of SR 160 as a single and complete project, therefore, the 0.5 acre impact would be “per box culvert crossing” rather than a total for the seven proposed box culvert extensions. Following the call, I sent Pat a nationwide guidance sheet asking her to confirm that each box culvert could impact up to 0.5 acre.

Concerning impacts to the wash, Pat noted that any fill placed below the ordinary high water mark would be considered a fill.
Ben and I contacted Pat to discuss the activities NDOT will conduct at some point in the future to determine the project’s impact on waters of the U.S. The information obtained from Pat will be used to update the text in Section 3 (waters of the U.S.) of the SR 160 EA.

Dan began the conversation noting that in past conversations with the COE, Pat told the SR 160 team that generally washes that drain east toward Las Vegas would be considered waters of the U.S. while drainages flowing west toward Pahrump would not. Pat concurred with that statement and noted that the general rule just mentioned does not preclude any steps in determining the project’s impacts on waters of the U.S.

Pat said there are two approaches to determining the project’s impacts, a preliminary jurisdictional determination and an approved jurisdictional determination. The common feature of both approaches is that each requires a full delineation of all the washes in the project area. To begin the delineations, Pat said she would meet NDOT’s “wetland delineator” in the field to share her approach to determining the ordinary high water elevation. The difference between the two approaches is that the approved jurisdictional report, which comes to definitive conclusions about whether the delineated washes are jurisdictional or non-jurisdictional, goes to USEPA and COE headquarters for the determination. With the preliminary jurisdictional determination approach, NDOT would assume that all delineated washes are jurisdictional and it is ready to move directly to the permitting process. Because Pat is authorized to make all the decisions as part of the preliminary jurisdictional determination process, it takes less time than the approved jurisdictional determination. When I asked Pat whether the preliminary jurisdictional process, which assumes all delineated wetlands are jurisdictional, would lead to NDOT mitigating for wash impacts that may not be jurisdictional, Pat replied that the COE typically does not require mitigation for culvert extensions (such as being proposed on this project) because, by maintaining drainage, the COE does not view that waters of the U.S. have been lost. Pat stated that if NDOT has a year or two before a permit is needed, they may want to use the approved jurisdictional determination process which would allow them to focus only on the washes that are jurisdictional during the permitting process.

I asked Pat about the potential permit type on the SR 160 project. She confirmed that the COE would view each project crossing of a wash as a separate project making a Nationwide 14 as the likely permit type. Pat noted the Nationwide 14 permit would allow up to 0.5 acre to be affected at each wash crossing. I asked Pat whether she might recommend an individual permit if one (or more) wash crossings would affect more than 0.5 acre of the wash. Pat said that might be possible. She also mentioned that another approach would be to use Nationwide 14 permits for all crossings that affect less than 0.5 acre and use a Letter of Permission, which has a 1.0 acre maximum impact, for the crossing(s) that do not qualify for a Nationwide 14. Pat stated that with the Nationwide 14 permit and Letter of Permission there is no need for a public hearing.

In closing, Pat said it would be a good idea to send her the project’s wash delineation report in advance of the permit application regardless of the jurisdictional approach NDOT selects.
April 12, 2013
Service File Nos. 84320-2013-F-0163 and
84320-2010-F-0285

Mr. Abdelmoez A. Abdalla
Environmental Program Manager
Federal Highway Administration
705 North Plaza Street, Suite 220
Carson City, Nevada 89701

Dear Mr. Abdalla:

Subject: Request to Append Widening of SR 160 from SR 159 to Mountain Springs, Clark County, Nevada

This responds to your March 5, 2013, request to append the subject activity to the programmatic biological opinion issued to the Federal Highway Administration on September 27, 2010 (File No. 84320-2010-F-0285). The programmatic biological opinion addressed potential effects to the Mojave desert tortoise (Gopherus agassizii), a species listed as threatened under the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 et seq.). Our response is prepared in accordance with 50 CFR § 402 of our interagency regulations governing section 7 of the Act, as amended, and our 2003 draft programmatic consultation guidance.

The Federal Highway Administration is proposing to fund the Nevada Department of Transportation (NDOT) to widen State Route 160 from 2 lanes to 4 lanes starting at milepost 11.04 to milepost 22.0. This would result in 65 acres of new disturbance to desert tortoise habitat. No critical habitat would be affected by the proposed action.

Based on the information received in your letter, discussions between NDOT and the Fish and Wildlife Service (Service), and our files, it is the Service’s biological opinion that the subject activity is within the scope of the programmatic biological opinion and is hereby appended to the programmatic biological opinion.
If we can be of further assistance, please contact Brian A. Novosak in the Nevada Fish and Wildlife Office in Las Vegas at (702) 515-5230 and reference the file number above.

Edward D. Koch  
State Supervisor

Enclosure

cc:
Administrator, Clark County Desert Conservation Program, Las Vegas, Nevada
Chief, Environmental Services, Nevada Department of Transportation, Carson City, Nevada
Chief, St. George Regulatory Office, U.S. Army Corps of Engineers, St. George, Utah
District Manager, Las Vegas Field Office, Bureau of Land Management, Las Vegas, Nevada
ENCLOSURE

BIOLOGICAL OPINION

APPENDED ACTION UNDER THE FEDERAL HIGHWAY ADMINISTRATION PROGRAMMATIC BIOLOGICAL OPINION (PBO)

Date of Request: March 5, 2013
Date Received: March 12, 2013
Date of Response: April 10, 2013
Species Affected: Mojave desert tortoise (Gopherus agassizii)

Project File No.: 84320-2013-F-0163
PBO File No.: 84320-2010-F-0285

A. DESCRIPTION OF THE PROPOSED ACTION

The Federal Highway Administration is proposing to fund the Nevada Department of Transportation (NDOT) to widen State Route 160 from 2 lanes to 4 lanes starting at milepost 11.04 to milepost 22.0. This would result in 65 acres of new disturbance to desert tortoise habitat. The project would start construction in 2017 and would last several months.

No designated critical habitat for the desert tortoise occurs in the proposed project area; therefore, critical habitat would not be included in the scope of our analysis.

For more information regarding construction activities for Expanded Capacity please see page 5 in the PBO and the biological assessment for the project.

B. SUMMARY OF INFORMATION NOT IDENTIFIED IN THE PBO USED TO EVALUATE THE EFFECTS OF THE PROPOSED ACTION

In 2010, Service completed its 5-year review of the status of the Mojave desert tortoises (Service 2010). The review provides the most up-to-date information on the rangewide status of the species. We are incorporating it by reference.

In 2011, the Service also revised the recovery plan for the Mojave Desert Tortoise (Service 2011). In the revised plan, the Service identified several recovery actions and prioritized restriction, designation, closure, and fencing of roads. The Service recognized that paved highways and roads have significant impacts on desert tortoise populations and habitat. Substantial numbers of desert tortoises are killed on paved roads, and roads fragment habitat and facilitate invasion of non-native vegetation. The Service recommends tortoise-barrier fencing should be installed to protect desert tortoises from being killed on the road, and installing
culverts and underpasses to minimize the fragmenting effects of the road. We applaud FHWA and NDOT for incorporating these measures into their project design.

In April 2012, pre-project surveys were conducted within the desert tortoise habitat along the project area, and 1 carcass and 2 burrows were located. No other desert tortoise sign was observed within the project area.

Table 2 in the PBO outlines several proposed highway projects that would be constructed between 2010 and 2010, including this project. The table also lists the expected acreage of desert tortoise habitat to be disturbed. This project was expected to result in 30 acres of new disturbance in desert tortoise habitat. However, this modified proposal would result in 65 acres of new disturbance to desert tortoise habitat.

In the *Incidental Take Statement* on page 42 of the PBO, the Service anticipated that expanded capacity program activities would result in take of no more than 2 desert tortoises through mortality and 15 through capture and relocation, and up the 770 acres of non-critical desert tortoise habitat would be disturbed. To date, no desert tortoises have been reported killed, injured, or taken through capture and relocation and no new desert tortoise habitat has been reported disturbed.

**C. EFFECTS OF THE ACTION**

In addition to the *Effects of expanded capacity, and improvements and maintenance of existing transportation routes, structures, and facilities on the desert tortoise* section on page 37 of the PBO, some management actions recommended in the Revised Recovery Plan (Service 2011) are incorporated into the proposed action, such as fencing roads and installing culverts. The Service determines that the actions should improve desert tortoise habitat over time.

**D. CONCLUSION**

After reviewing the current status of the desert tortoise, the environmental baseline for the project area, the effects of the proposed action and the cumulative effects, it is the Service’s biological opinion that the proposed action is within the scope of the PBO issued to the FHWA and is therefore, not likely to jeopardize the continued existence of the Mojave desert tortoise. This action is hereby appended to the PBO.
INCIDENTAL TAKE STATEMENT

A. AMOUNT OR EXTENT OF TAKE EXEMPTED

Based on the analysis of effects provided above, minimization measures, and anticipated project duration, implementation of the proposed project is anticipated to result in the following take:

<table>
<thead>
<tr>
<th>Exempted Mortality, Injury, and Destruction</th>
<th>Exempted Harassment: Capture and Relocation</th>
<th>Anticipated Habitat Loss (acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2</td>
<td>0 Non-critical 65</td>
</tr>
</tbody>
</table>

This take is a subset of the desert tortoises and desert tortoise habitat anticipated to be taken in the programmatic incidental take statement of the PBO issued to the FHWA on September 27, 2010 (Service File No. 84320-2010-F-0285).

B. RECOMMENDATIONS FOR ADDITIONAL PROJECT-SPECIFIC REASONABLE AND PRUDENT MEASURES

Remuneration Fees—Prior to surface-disturbing activities associated with the project, FHWA shall submit remuneration fees for compensation of desert tortoise habitat loss (Appendix A). On public lands, the current rate is $824 per acre of disturbance outside desert tortoise critical habitat and should be paid to the BLM. On private lands, the rate is $550 per acre and should be paid to the Clark County Desert Conservation Program. For more information, please contact the Service at (702) 515-5230.

Fees on public land are indexed for inflation based on the Bureau of Labor Statistics Consumer Price Index for All Urban Consumers (CPI-U) and become effective March 1 of each year. Information on the CPI-U can be found on the internet at: [http://www.bls.gov/news.release/cpi.toc.htm](http://www.bls.gov/news.release/cpi.toc.htm).

Reporting—In addition to the reporting requirements identified in the PBO, please complete and include in the report the following table:
Example 1. Desert tortoise actual incidental take.

<table>
<thead>
<tr>
<th>Widening of SR 160 from SR 159 to Mountain Springs</th>
<th>Project File No. 84320-2013-F-0163</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Mortality, Injury, and Destruction</td>
<td>Actual Harassment: Capture and Relocation</td>
</tr>
<tr>
<td></td>
<td>Actual Habitat Loss (acres)</td>
</tr>
<tr>
<td></td>
<td>Critical</td>
</tr>
<tr>
<td>Minimization Measure Implemented</td>
<td>Effectiveness of Minimization Measures and Recommendations for Improvement</td>
</tr>
</tbody>
</table>

**CONSERVATION RECOMMENDATION**

*Minimize habitat loss*—In the revised recovery plan for the Mojave Desert Tortoise (Service 2011), the Service also prioritized protection of existing desert tortoise populations and habitat. Therefore, we recommend FHWA and NDOT reduce the amount of new disturbance in desert tortoise habitat by narrowing the width of the Clear Zones to less than 30 feet.

**LITERATURE CITED**


June 4, 2013

Abdelmoez A. Abdalla
Environmental Program Manager
US Department of Transportation
Federal Highway Administration (FHWA)
705 N. Plaza Street, Suite 220
Carson City, Nevada 89701

RE: SR 160 Widening Project
Between the Blue Mountain and Mountain Springs Areas
Clark County, Nevada
SHPO Undertaking #2013-2525, #EA 73395, NDOT #CL10-043R

Dear Mr. Abdalla:

The State Historic Preservation Office (SHPO) is in receipt of your letter dated May 2, 2013 (received May 7, 2013) requesting consultation for the above referenced undertaking. The FHWA is requesting concurrence with its determined Area of Potential Effects (APE) and review of the additional information submitted per SHPO’s request of February 14, 2013 and project changes. The FHWA will be submitting subsequent requests for consultation, with the standard 30-day review period, for the eligibility of identified properties and undertaking effects.

This undertaking is to widen approximately twelve miles of SR 160 in Clark County, beginning at the SR 159/SR 160 intersection and ending two miles west of the Mountain Spring summit. The proposed project would widen the road and create a divided four-lane route with a 14 foot median for the length of the project. Recently the design team decided to add Intelligent Transportation Systems (ITS) improvements and lighting to the project within the Nevada Department of Transportation (NDOT) right of way, and in accordance with Federal safety design guidance and the Clark County ITS Master Plan.

In accordance with Section 106 of the National Historic Preservation Act (NHPA), as amended, the SHPO concurs with the FHWA determination that this APE is adequate. In the event that FHWA adds additional project design changes that could alter the established APE, we look forward to additional consultation.
Abdelmoez A. Abdalla  
June 4, 2013  
Page 2 of 2

Should you have any questions concerning this correspondence, please contact SHPO staff architectural historian Mara Thiessen Jones at (775) 684-3439 or by e-mail at mara.jones@shpo.nv.gov or Jessica Axsom at (775) 684-3445 or by e-mail at jaxsom@shpo.nv.gov.

Sincerely,

[Signature]

Rebecca Lynn Palmer  
Acting State Historic Preservation Officer
Abdelmoez A. Abdalla  
Federal Highway Administration  
Environmental Program Manager  
705 North Plaza Street, Suite 220  
Carson City, NV 89701-0602  

RE: *SR 160 Widening Project, Clark County, Nevada.*  

Dear Mr. Abdalla:

The Nevada State Historic Preservation Office (SHPO) has reviewed the subject documents in compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended.

The SHPO concurs with the Federal Highway Administration (FHWA) and the Nevada Department of Transportation’s (NDOT) determination that the following cultural resources are not eligible for the National Register of Historic Places under any of the Secretary’s criteria:

<table>
<thead>
<tr>
<th>Site #:</th>
<th>Resource Type (Contributing/Non-contributing):</th>
<th>Eligible National Register Criteria:</th>
</tr>
</thead>
<tbody>
<tr>
<td>26CK1586</td>
<td>Prehistoric Archaeological Site.</td>
<td>C &amp; D.</td>
</tr>
<tr>
<td>26CK3222</td>
<td>Prehistoric Archaeological Site.</td>
<td>C &amp; D.</td>
</tr>
<tr>
<td>26CK3372</td>
<td>Prehistoric Archaeological Site.</td>
<td>D.</td>
</tr>
<tr>
<td>26CK3375</td>
<td>Prehistoric Archaeological Site.</td>
<td>D.</td>
</tr>
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<td>26CK5421</td>
<td>Prehistoric Archaeological Site.</td>
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<td>26CK7338</td>
<td>Prehistoric Archaeological Site.</td>
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<td>26CK9238</td>
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</tr>
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<td>Prehistoric Archaeological Site.</td>
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<td>Prehistoric Archaeological Site.</td>
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<td>Prehistoric Archaeological Site.</td>
<td>D.</td>
</tr>
<tr>
<td>26CK9810</td>
<td>Prehistoric Archaeological Site.</td>
<td>D.</td>
</tr>
</tbody>
</table>

The SHPO concurs with the FHWA and NDOT’s determination that the following properties are eligible for the National Register of Historic Places under the Secretary’s criteria noted below:

<table>
<thead>
<tr>
<th>Site #:</th>
<th>Resource Type (Contributing/Non-contributing):</th>
<th>Eligible National Register Criteria:</th>
</tr>
</thead>
<tbody>
<tr>
<td>18461</td>
<td>Prehistoric Archaeological Site.</td>
<td>C &amp; D.</td>
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<tr>
<td>18462</td>
<td>Prehistoric Archaeological Site.</td>
<td>C &amp; D.</td>
</tr>
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</table>
The FHWA and NDOT are deferring a determination of National Register eligibility for the following cultural resources, as they were not relocated during the intensive archaeological survey of the area of potential effect (APE):

26CK377  26CK3379  26CK3380  26CK3848
26CK6654.

Per the Federal Highway Administration (FHWA) submission letter of June 25, 2013 and in accordance with Section 106 of the National Historic Preservation Act (NHPA), as amended, the SHPO concurs with the FHWA determinations of eligibility as listed within your letter (Table #2) and below:

<table>
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<tr>
<th>Trinomial</th>
<th>Field Number</th>
<th>Lead Eligibility</th>
<th>Criteria</th>
<th>SHPO Eligibility</th>
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<td>B12763</td>
<td>18875 SR 160</td>
<td>Unevaluated</td>
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<td>1968</td>
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<td>Contributor</td>
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<td>D118</td>
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<td>B12765</td>
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<td>B</td>
<td>Eligible</td>
<td>B</td>
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<td>A &amp; B</td>
<td>Eligible</td>
<td>A&amp;B</td>
<td>C 1920s-1965</td>
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</tbody>
</table>

If you have any questions concerning this correspondence, please contact Jessica Axsom by phone at (775) 684-3445 or by e-mail at jaxsom@shpo.nv.gov and/or please contact SHPO staff architectural historian Mara Thiessen Jones at (775) 684-3439 or by e-mail at mara.jones@shpo.nv.gov.

Sincerely,

[Signature]

Rebecca Lynn Palmer
Acting State Historic Preservation Officer
Abdelmoez A. Abdalla
Federal Highway Administration
Environmental Program Manager
705 North Plaza Street, Suite 220
Carson City, NV 89701-0602

RE:  
SR 160 Widening Project, Clark County, Nevada.  
EA #73395/ NDOT #CL10-043R/ FHWA #STP-0160(022)/ Undertaking #2013-2525.

Dear Mr. Abdalla:

The Nevada State Historic Preservation Office (SHPO) has reviewed the subject undertaking in compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended.

The SHPO notes that consultation with the affected Native American representatives has been completed in good faith under NHPA.

The SHPO concurs with the Federal Highway Administration’s (FHWA) determination of an area of potential effect (APE) in consultation with the Native American representatives.

The FHWA is deferring a determination of National Register eligibility and treating all of the multiple properties of religious or cultural significance identified as eligible for the purpose of NHPA that could be affected by the undertaking due to the following:

"...[The tribes have] declined sharing any information on the sites’ location. They have also declined sharing the stories associated with these places with her [Sabra Gilbert-Young], the FHWA, and the SHPO. To respect the tribes’ wishes, no further information on these properties will be sought." - FHWA transmittal letter received January 30, 2014.

The SHPO concurs with the FHWA’s determination that the proposed undertaking will not pose an adverse effect to the identified historic properties.

If any buried and previously unidentified resources are located during the project activities, the SHPO recommends that all work in the vicinity of the find cease and this office be contacted for additional consultation per 36 CFR 800.13.b.3.
Abdelmoez A. Abdalla
Page 2 of 2
February 28, 2014

Should you have any questions concerning this correspondence, please contact Jessica Axsom at (775)684-3445 or by e-mail at jaxsom@shpo.nv.gov.

Sincerely,

[Signature]

Rebecca Lynn Palmer
State Historic Preservation Officer

cc. C. Cliff Creger, NDOT
From: Steve Wyszomirski  
Sent: Monday, June 18, 2012 5:19 PM  
To: James Caviola  
Cc: Anita Rahi  
Subject: SR-160

Jim,
I was finally able to talk with the Post Master (Angie Martin) regarding the installation of a new cluster mail boxes in Mountain Springs on the south side of SR160. She indicated that the installation of a new cluster mail box on the south side can be accomplished with some work. She explained that she was involved several years ago with NDOT to provide the two turn outs they currently have in Mountain Springs. Based on what she said the installation of the turnout for the mail box would be a project cost, but they would install the new or used cluster box.

She indicated that typically complaint letters or phone calls drive the relocation or installation of a new box. She has not received any complaints from the residents having to go to the north side of SR160. After I explained the installation of the new median and lanes and the safety issues with residents trying to cross the road she supported the installation of the new box.

I guess the next step would be to include an engineered turnout for the cluster boxes on the north side (assuming it will need to be relocated) and a new turnout on the south side in a location that makes sense.

Please let me know if you have other questions or need additional info.

Thank you.

Stephen Wyszomirski  
CA Group, Inc  
702 685-5945 Office  
702 685-5947 Fax  
702 426-4645 Mobile  
2785 S Rainbow Blvd  
Las Vegas, NV 89146
09 April 2012

Mike Myers
AZTEC Engineering Group, Inc.
4560 East McDowell Road
Phoenix, AZ  85008

RE: Data request received 04 April 2012

Dear Mr. Myers:

We are pleased to provide the information you requested on endangered, threatened, candidate, and/or at risk plant and animal taxa recorded within or near the NDOT SR-160 Improvements from SR 159 to Mountain Springs in Clark County. We searched our database and maps for the following, a two kilometer radius around shapefile provided, including:

Township 22S Range 58E Sections 19, 20, 24-29 and 33-35
Township 22S Range 59E Sections 15-19

The enclosed printout lists the taxa recorded within the given area. Please be aware that habitat may also be available for: polished blazingstar, Mentzelia polita, a Taxon determined to be Critically Imperiled by the Nevada Natural Heritage Program (NNHP); the Jaeger phacelia, Phacelia geraniifolia, a Taxon determined to be Imperiled by the NNHP; the Carole’s silverspot, Speyeria carolae, a Taxon determined to be Imperiled by the NNHP; and the Spring Mountains acastus checkerspot, Chlosyne acastus robusta, a Nevada Bureau of Land Management Sensitive Species. The Nevada Department of Wildlife (NDOW) manages, protects, and restores Nevada’s wildlife resources and associated habitat. Please contact Chet Van Dellen, NDOW GIS Coordinator (775.688.1565) to obtain further information regarding wildlife resources within and near your area of interest. Removal or destruction of state protected flora species (NAC 527.010) requires a special permit from Nevada Division of Forestry (NRS 527.270).

Please note that our data are dependent on the research and observations of many individuals and organizations, and in most cases are not the result of comprehensive or site-specific field surveys. Natural Heritage reports should never be regarded as final statements on the taxa or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments.

Thank you for checking with our program. Please contact us for additional information or further assistance.

Sincerely,

Eric S. Miskow
Biologist/Data Manager
At Risk Taxa Recorded Near the NDOT SR 160 Project Area near Mountain Springs
Compiled by the Nevada Natural Heritage Program for AZTEC Engineering Group, Inc.
09 April 2012

<table>
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<th>Scientific name</th>
<th>Common name</th>
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<th>Blm</th>
<th>Usfs</th>
<th>State</th>
<th>Srank</th>
<th>Grank</th>
<th>UTM E</th>
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<th>Prec</th>
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U. S. Fish and Wildlife Service (USFWS) Categories for Listing under the Endangered Species Act:

LT Listed Threatened - likely to be classified as Endangered in the foreseeable future if present trends continue
RJ Former Category 1 Candidate/proposed species, now a species of concern for which there is insufficient evidence of vulnerability and threats

Bureau of Land Management (BLM) Species Classification:

S Nevada Special Status Species - USFWS listed, proposed or candidate for listing, or protected by Nevada state law
N Nevada Special Status Species - designated Sensitive by State Office
C California Special Status Species (see definition S and N)

United States Forest Service (USFS) Species Classification:

S Region 4 (Humboldt-Toiyabe NF) sensitive species
I Region 5 (Inyo NF) sensitive species
T Region 4 and/or Region 5 Threatened species

Nevada State Protected (State) Species Classification:

Fauna:
YES Species protected under NRS 501.

Flora:
CE Critically endangered - species whose survival requires assistance because of overexploitation, disease or other factors, or because their habitat is threatened with destruction, drastic modification or severe curtailment (NRS 527.260-.300)
CY Protected as a cactus, yucca, or Christmas tree (NRS 527.060-.120)

Precision (Prec) of Mapped Occurrence:

Precision, or radius of uncertainty around latitude/longitude coordinates:

S Seconds: within a three-second radius
M Minutes: within a one-minute radius, approximately 2 km or 1.5 miles
G General: within about 8 km or 5 miles, or to map quadrangle or place name

Nevada Natural Heritage Program Global (GRank) and State (Srank) Ranks for Threats and/or Vulnerability:

G Global rank indicator, based on worldwide distribution at the species level
T Global trinomial rank indicator, based on worldwide distribution at the infraspecific level
S State rank indicator, based on distribution within Nevada at the lowest taxonomic level
1 Critically imperiled and especially vulnerable to extinction or extirpation due to extreme rarity, imminent threats, or other factors
2 Imperiled due to rarity or other demonstrable factors
3 Vulnerable to decline because rare and local throughout its range, or with very restricted range
4 Long-term concern, though now apparently secure; usually rare in parts of its range, especially at its periphery
5 Demonstrably secure, widespread, and abundant
A Accidental within Nevada
B Breeding status within Nevada (excludes resident taxa)
H Historical; could be rediscovered
N Non-breeding status within Nevada (excludes resident taxa)
Q Taxonomic status uncertain
U Unrankable
Z Enduring occurrences cannot be defined (usually given to migrant or accidental birds)
? Assigned rank uncertain
Dear Mr. Caviola,

Please accept this letter as an official statement of opposition to the use of street lighting in conjunction with the proposed widening and improvements to State Highway 160. The safety of State Highway 160 has long been a concern for the community. The high speed limit and the curves in the road heading into Las Vegas have combined to make this a very dangerous road for not only the residents of Mountain Springs, but also for all of the motorists that use the highway to commute back and forth to Pahrump. We believe that the addition of street lighting to the highway will be detrimental to the Mountain Springs community and increase the dangerous nature of the highway for the following reasons:

- The lighted areas may attract wildlife (elk, burros, bighorn sheep, mule deer, coyotes, mountain lions and bats) onto the road creating additional traffic hazards
- Street lighting is not in keeping with the rural character of the community, will be intrusive to the residents of the area and may lead to reduced property values
- Additional lighting may make the areas near the road more attractive for use by people looking for a place to loiter or engage in illegal activity, leading to increased crime in the area
- Lighting may lead to increased driving speeds and greater potential for accidents

Thank you for your consideration of our concerns.

Sincerely,

Robert Monaco
Chairman
Mountain Springs Citizens Advisory Council
ROBERT MONACO, CHAIRMAN
MOUNTAIN SPRINGS CITIZENS ADVISORY COUNCIL
MOUNTAIN SPRINGS FIRE STATION
STATE ROUTE 160
LAS VEGAS, NV  89124

Dear Mr. Monaco:

I would like to thank you for the interest you and the Mountain Springs Citizens Advisory Council have shown in the SR 160 Improvement Project. I would also like to address the concerns listed in your recent letter to James Caviola (attached).

The Nevada Department of Transportation (NDOT) has been working diligently over the past 10 years to improve the safety on SR 160. To that end we have undertaken a detailed safety and environmental analyses of the segment of SR 160 that runs through the Mountain Springs community. The proposed improvements to SR 160 in this area include straightening out the roadway and flattening the hill through Mountain Springs to improve sight distance. It also includes adding a second lane to eliminate unsafe passing, adding a shoulder to provide a paved refuge off the roadway and consolidating and protecting access points to improve safety. NDOT is also adding a median island that will change the character of the roadway so motorists know they are in a rural town area and is also providing lighting at intersections to improve nighttime visibility which further reinforces this concept. NDOT is confident that these features will greatly improve the safety of SR 160 through Mountain Springs.

Your letter indicated that you have concerns regarding the inclusion of roadway lighting. We are including roadway lighting at the intersection areas to improve safety for both motorists passing through Mountain Springs and motorists accessing the roadways/driveways in Mountain Springs. The inclusion of lighting is also consistent with nationally accepted guidelines for rural highway design.

Below are responses to the four specific concerns that you raised:

Comment: The lighted areas may attract wildlife (elk, burros, bighorn sheep, mule deer, coyotes, mountain lions and bats) onto the road creating additional traffic hazards.
**Response:** Our environmental consultants could not find any supporting scientific studies that indicate that elk, burros, bighorn sheep, mule deer, coyotes, mountain lions and bats are attracted to minor light sources and no evidence was found that the species listed in the comment would be drawn to SR 160 because of the proposed intersection lighting. If these species are known to regularly cross SR 160 in established movement corridors through Mountain Springs, they may be expected to continue using those corridors after the lights are installed. If movement corridors through Mountain Springs do not exist today, there is no reason to expect that the species listed in the comment will be drawn to the proposed SR 160 intersection lighting. It should be noted that in August 2013, the U.S. Forest Service raised concerns about the project’s proposed lighting, not because of its effect on terrestrial mammals but rather to protect the night sky resource. When NDOT informed the U.S. Forest Service about the extent and type of lighting proposed, the agency was satisfied that the night sky would not be adversely affected. This was based on the fact that lighting would only be installed at the intersections and that the project would utilize cutoff lighting that minimizes light spill-over outside the immediate intersection area.

**Comment:** Street lighting is not in keeping with the rural character of the community, will be intrusive to the residents of the area and may lead to reduced property values.

**Response:** In an effort to minimize the amount of light introduced into the night sky, the lighting planned with the SR 160 improvements is limited to conflict points (intersections) and not throughout the length of the improvements in Mountain Springs. In addition, we will be installing cutoff lights which direct the light downward in a limited area only around the intersections. The intersections “in town” that would be illuminated include Williams Ranch Road, the proposed Pinion/Benedict intersection and the median opening serving the fire department. The three locations outside of Mountain Springs that would be illuminated, the Mt. Potosi Canyon Road intersection and the U-turn locations east and west of Mountain Springs, would have no impact on Mountain Springs. Because of the few lighted intersections and the type of light used, the areas to be illuminated will be the intersections themselves and not the community. There are numerous examples of rural communities throughout the country that have some level of lighting on the local roads or state trunk highways that pass through them. The vast majority of the development in Mountain Springs is located well beyond the SR 160 intersections to be illuminated and will not be able to see the proposed lighting. Based on this we are confident that the introduction of intersection lighting will not change the character of the community or adversely affect property values.

**Comment:** Additional lighting may make the areas near the road more attractive for use by people looking for a place to loiter or engage in illegal activity leading to increased crime in the area.

**Response:** Our environmental study team could not find any supporting analysis that indicates that the introduction of roadway lighting would cause people to loiter at highway intersections. In fact, it has been demonstrated that one purpose of lighting is to
enhance security and prevent crime. This position is held by numerous law enforcement organizations.

Comment: Lighting may lead to increased driving speeds and greater potential for accidents.

Response: The addition of lighting at intersections is a nationally accepted crash mitigation strategy. Numerous national studies indicate that intersection lighting decreases accidents as opposed to increasing them. The introduction of intersection lighting in Mountain Springs will also alert motorists on SR 160 that they are entering an area where motorist may be entering the roadway. This should result in a decrease in travel speed in this area, not an increase.

In summary, even though the proposed improvements will introduce several new sources of light to the Mountain Springs area, they would not result in a significant adverse impact to either the community’s night sky or rural character and there would actually be an increase in safety for residents and SR 160 travelers. I hope the above responses to your concerns are satisfactory to the Mountain Springs Citizens Advisory Council. Please let me know if you have any additional questions or concerns regarding this project. We will be circulating a copy of the Environmental Assessment for the project in the near future. We will also be holding a Public Hearing, most likely in June. We appreciate your input into this process.

Sincerely

[Signature]

Steve M. Cooke, P.E., Chief
Environmental Services Division

Enclosure

CC: Abdelmoez Abdalla, FHWA Environmental Program Manager
Appendix B
Plant Species Observed during
Spring 2012 Field Survey
**Grasses and Grasslike Plants**

Big Galleta (*Pleuraphis rigida*)
Indian Ricegrass (*Achnatherum hymenoides*)
Bush Muhly (*Muhlenbergia porteri*)
Desert Needle Grass (*Achnatherum speciosum*)
Needle and Thread Grass (*Hesperostipa comata*)
Muhly (*Muhlenbergia spp.*)
Threeawn (*Aristida*)
Purple Threeawn (*Aristida purpurea*)
Red Brome (*Bromus rubens*)
Cheatgrass (*Bromus tectorum*)
Ripgut Brome (*Bromus diandrus*)
Tanglehead (*Heteropogon contortus*)
Foxtail (*Hordeum jubatum*)
Alkali Sacaton (*Sporobolus airoides*)
Junegrass (*Koeleria macrantha*)
Low woollygrass (*Dasyochloa pulchella*)
Bulrush (*Scirpus spp.*)

**Forbs, Herbs, Biennials, and Annuals**

White Thistle (*Cirsium hookeri*)
Windmills (*Allionia spp.*)
Russian Thistle (*Salsola kali*)
Mohave Prickly Poppy (*Argemone corymbosa*)
Sacred Thorn-Apple (*Datura wrightii*)
Desert Columbine (*Aquilegia desertorum*)
Thickstem Wild Cabbage (*Caulanthus crassicaulis*)
Birdcage Evening Primrose (*Oenothera deltoides*)
Basin Yellow Cryptantha (*Crypantha confertiflora*)
Desert Lily (*Hesperocallis undulata*)
Mustard (*Brassica spp.*)
Sahar Mustard (*Brassica tournefortii*)
Globemallow (*Sphaeralcea spp.*)
Desert Globemallow (*Sphaeralcea ambigua*)
Malta Star-thistle (*Centaura melitensis*)
Plantain (*Plantago spp.*)
Palmer Penstemon (*Penstemon palmeri*)
Prairie Flax (*Linum lewisi*)
Indian Paintbrush (*Castilleja spp.*)
Southwestern Mock Vervain (*Glandularia gooddingii*)
Mohave Woodyaster (*Xylorhiza tortifolia v. tortifolia*)
Elkweed (*Fraseria speciosa*)
Redstem Stork’s Bill (*Erodium cicutarium*)
Milkweed (*Asclepias spp.*)
Desert Milkweed (*Asclepias erosa*)
Twinpod (*Physaria spp.*)
Various Yellow Composites

**Shrubs**

Creosote Bush (*Larrea tridentata*)
White Bursage (*Ambrosia dumosa*)
Nevada Jointfir (*Ephedra nevadensis*)
Fremont’s Dalea (*Psorothamnus fremontii*)
Apache Plume (*Fallugia paradoxa*)
Stansbury Cliffrose (*Puhsia stansburiana*)
Big Sagebrush (*Artemisia tridentata*)
Saltbush (*Atriplex spp.*)
Shadscale Saltbush (*Atriplex confertifolia*)
Fourwing Saltbush (*Atriplex canescens*)

**Cacti**

Cholla (*Cylindropuntia spp.*)
Branched Pencil Cholla (*Cylindropuntia ramosissima*)
Mohave Mound Cactus (*Echinocereus polyacanthus*)
Old Man/Grizzly Bear Cactus (*Opuntia polyacantha erinacea*)
Cushion Foxtail Cactus (*Escobaria alversonii*)
Hedgehog Cactus (*Echinocereus spp.*)
Beavertail Pricklypear (*Opuntia basilaris*)
Barrel Cactus (*Ferrocactus cylindraceus v. cylindraceus*)
Prickly Pear (*Opuntia spp.*)
Wiggins’ Cholla (*Cylindropuntia echinocarpa*)

**Trees**

Singleleaf Pinyon (*Pinus monophylla*)
Utah Juniper (*Juniperus osteosperma*)
Cottonwood (*Populus spp.*)
White Alder (*Alnus rhombifolia*)
Velvet Ash (*Fraxinus velutina*)
Tamarisk (*Tamarix spp.*)
Tree Tobacco (*Nicotiana glauca*)
Desert Willow (*Chilopsis linearis*)
Jerusalem Thorn (*Parkinsonia aculeata*)
Sonoran Scrub Oak (*Quercus turbinella*)
Gambel Oak (*Quercus gambelii*)
Mesquite (*Prosopis sp.*)
## FHWA Native American Consultation

### Dates of Contact with Consulted Tribes and Tribal Organizations

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*a Date of comments delivered on record at Public Information Meeting

*b Date of comments delivered on record and off record at Public Information Meeting
A. Project Technical Memorandums

1. Environmental
Architectural Survey: SR 160 Widening Project between Milepost 11 and Milepost 23.2, Clark County, Nevada
Custom Soil resource Report for Clark County Area, Nevada: Energy and Defense Area, Nevada, Parts of Clark, Lincoln, and Nye Counties; and Las Vegas Valley Area, Nevada, Part of Clark County
Finding of Effect to Architectural Resources: State Route 160 Widening Project
SR 160 Air Quality Analysis
SR 160 Biological Technical Report
SR 160 Indirect and Cumulative Impacts Technical Report
SR 160 Risk Assessment for Noxious and Invasive Weeds
SR 160 Traffic Noise Analysis
SR 160 Visual Impact Assessment

2. Traffic and Safety
SR 160 Crash Analysis
SR 160 Critical Crash Rate Analysis
SR 160 Existing Roadway Deficiency Report
SR 160 Road Safety Audit (Pre-Construction Phase Audit)
SR 160 Road Safety Audit Update
SR 160 Traffic Forecast Memorandum
SR 160 Traffic Forecast Methodology
SR 160 Traffic Operations Analysis, Future Improvements
SR 160 Traffic Operation Analysis Methodology
SR 160 Traffic Operation Analysis, “No Build”

3. Alternatives
SR 160 Alternatives Evaluation, Revised September 2012
SR 160 Benefit/Cost Analysis
SR 160 Value Engineering Report

B. Agency Coordination
SR 160 Coordination Plan
Summary of Agency Scoping Meeting (February 22, 2012)

C. Public Involvement
Transcript from May 13, 2010 Public Information Meeting
Transcript from March 29, 2012 Public Information Meeting
Meeting Notes from August 15, 2012 Mountain Springs Citizens Advisory Council (CAC) Meeting
Meeting Notes from April 10, 2013 Mountain Springs CAC Meeting

D. Other

Final Report Landscape Analysis; Chapter 1: Characterization of the Spring Mountains National Recreation Area
Nevada Senate Bill No. 159

Project Scoping Report: SR 160, Blue Diamond Road, From Red Rock Canyon Road (SR 159) to 1.24 Miles North of Mountain Springs Summit