



US Department of the Interior  
Bureau of Land Management

# Greenlink West Transmission Project

FINAL ENVIRONMENTAL IMPACT STATEMENT/  
PROPOSED RESOURCE MANAGEMENT PLAN AMENDMENTS

**DOI-BLM-NV-0000-2022-0004-EIS**

**June 2024**

**EIS Costs to Date:  
\$10.7 million**

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# Final Environmental Impact Statement/Proposed Resource Management Plan Amendments

DOI-BLM-NV-0000-2022-0004-EIS  
Greenlink West Transmission Project

Prepared by  
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## **MISSION STATEMENT**

The Bureau of Land Management (BLM) is responsible for stewardship of our public lands. The BLM is committed to manage, protect, and improve these lands in a manner to serve the needs of the American people. Management is based upon the principles of multiple use and sustained yield of our Nation's resources within the framework of environmental responsibility and scientific technology. These resources include recreation, rangelands, timber, minerals, watershed, fish and wildlife habitat, wilderness, air, and scenic quality, as well as scientific and cultural values.

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## List of Acronyms and Abbreviations

3-D	Three-dimensional
ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council on Historic Preservation
ACS	American Community Survey
AFB	Air Force Base
AIRFA	American Indian Religious Freedom Act
AM	Amargosa Microwave
AML	Appropriate Management Level
ANL	Argonne National Laboratory
APE	Area of Potential Effects
APLIC	Avian Power Line Interaction Committee
AS	Amargosa Substation
Atwood Preserve	Gary and Lajetta Atwood Preserve
BA	Biological Assessment
BBCS	Bird and Bat Conservation Strategy
BCC	Birds of Conservation Concern
BCR	Bird Conservation Region
BE	Biological Evaluation
Beltway	Clark County Route 215
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BLS	Bureau of Labor Statistic
BMDO	Battle Mountain District Office
BMP	Best Management Practice
BO	Biological Opinion
BSFC	Brake-specific fuel consumption
CAA	Clean Air Act
CALI	California National Historic Trail
CCDO	Carson City District Office
CDP	Census Designated Place
CEAA	Cumulative effects analysis area
CEMP	Community Environmental Monitoring Program
CEQ	Council on Environmental Quality
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	Code of Federal Regulations
CH <sub>4</sub>	Methane
CO	Carbon monoxide
CO <sub>2</sub>	Carbon dioxide
CO <sub>2</sub> e	Concentrations of greenhouse gases
COM	Construction, Operations, and Maintenance
CWA	Clean Water Act
DAPE	Direct Area of Potential Effects

## List of Acronyms and Abbreviations (continued)

Draft EIS	Draft Environmental Impact Statement
DEVA	Death Valley National Park
DLA	Designated Lease Areas
DO	District office
DOD	Department of Defense
DOI	Department of the Interior
DPS	Distinct population segment
Eagle Act	Bald and Golden Eagle Protection Act
EB	Eastbound
ECP	Eagle Conservation Plan
EHV	Extra-high voltage
EIS	Environmental Impact Statement
EJ	Environmental Justice
EMF	Electric and magnetic fields
EMM	Environmental Management Measure
EO	Executive Order
EPC	Engineering, Procurement, and Construction
EPM	Environmental Protection Measures
ERMA	Extensive Recreation Management Area
ES	Esmeralda Substation
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FG	Foreground
FLPMA	Federal Land Policy and Management Act
FMP	Fire Management Plan
FO	Field office
FONSI	Finding of No Significant Impact
FTE	Full-time equivalent
GBIF	Global Biodiversity Information Facility
GHG	Greenhouse gas
GIS	Geographic Information System
GLO	General Land Office
GLWP	Greenlink West Transmission Project
GMP	General management plan
GMU	Game Management Unit
GPR	Ground-penetrating radar
H <sub>2</sub> S	Hydrogen sulfide
HAP	Hazardous air pollutant
HCF	Habitat Conservation Framework
HMA	Herd Management Area
HPTP	Historic properties treatment plan

## List of Acronyms and Abbreviations (continued)

HU	Hunting Unit
HUC	Hydrologic Unit Code
I-15	Interstate 15
IAU	Inventory Analysis Unit
IBA	Important Bird Area
IM	Instruction Memorandum
IMPLAN	Impact Analysis for Planning
IOP	Interagency Operating Procedure
IPaC	Information for Planning and Consultation
IPCC	Intergovernmental Panel on Climate Change
ITA	Indian Trust Asset
ITCN	Inter-Tribal Council of Nevada
JIC	Joint Information Center
KOP	Key observation point
kV	Kilovolt
LET	Live Entertainment Tax
LUPA	Land Use Plan Amendment
LUST	Leaking underground storage tank
LWC	Lands with Wilderness Characteristics
MBT	Modified Business Tax
MBTA	Migratory Bird Treaty Act
MDIRA	Mojave Desert Initiative Rapid Assessment
MG	Middleground
MLWA	Military Lands Withdrawal Act of 1999
MM	Mile marker
MOU	Memorandum of Understanding
MOVES	Motor Vehicle Emission Simulator
mph	Miles per hour
MPO	Mining plans of operations
MSHCP	Multiple Species Habitat Conservation Plan
MT	Million tonnes
MTR	Military training route
MU	Management Unit
MW	Megawatts
MYA	Million years ago
N/A	Not applicable
NAAQS	National Ambient Air Quality Standards
NAC	Nevada Administrative Code
NB	Northbound
NBMG	Nevada Bureau of Mines and Geology
NCA	National Conservation Area
NDAA	National Defense Authorization Act
NDEP	Nevada Division of Environmental Protection
NDNH	Nevada Division of Natural Heritage

## List of Acronyms and Abbreviations (continued)

NDOM	Nevada Division of Minerals
NDOW	Nevada Department of Wildlife
NDSL	Nevada Division of State Lands
NDWR	Nevada Division of Water Resources
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NHD	National Hydrology Dataset
NHPA	National Historic Preservation Act
NHT	National Historic Trail
NNSS	Nevada National Security Site
NOI	Notice of Intent
NO <sub>x</sub>	Nitrogen oxides
NPS	National Park Service
NRA	National Recreation Area
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSR	New Source Review
NTSA	National Trails System Act
NTTR	Nevada Test and Training Range
NV	Nevada
NVCRIS	Nevada Cultural Resources Information System
NWI	National Wetlands Inventory
NWR	National Wildlife Refuge
O&G	Oil and gas
O&M	Operations and maintenance
O <sub>3</sub>	Ozone
OHV	Off-highway vehicle
OLSP	Old Spanish National Historic Trail
OPGW	Optical ground wire
OSHA	Occupational Safety and Health Administration
PAC	Priority Area for Conservation
Pb	Lead
PFYC	Potential Fossil Yield Classification
PIER	Paleontological Resources Inventory and Evaluation Report
PL	Public Law
PM	Particulate matter
PMU	Population Management Unit
POD	Plan of Development
POEX	Pony Express National Historic Trail
Proponent	NV Energy
PRPA	Paleontological Resources Preservation Act of 2009
PSD	Prevention of Significant Deterioration
PUCN	Public Utilities Commission of Nevada

## List of Acronyms and Abbreviations (continued)

PUP	Pesticide Use Proposal
PVT	Private
PWA	Philip Williams & Associates
RCRA	Resource Conservation and Recovery Act of 1976
RFFA	Reasonably foreseeable future action
RM	Reference Manual
RMP	Resource Management Plan
ROD	Record of Decision
ROW	Right-of-way
RPAM	Real Property Asset Management
RPTT	Real Property Transfer Tax
RSF	Resource selection functions
RV	Recreational vehicles
SB	Southbound
SDA	Special designation area
Section 106	Section 106 of the National Historic Preservation Act
SEP	Socioeconomic Profile
SEZ	Solar Energy Zones
SHPO	State Historic Preservation Office
SMNRA	Spring Mountains National Recreation Area
SNDO	Southern Nevada District Office
SNPLMA	Southern Nevada Public Land Management Act
SO <sub>2</sub>	Sulfur dioxide
SOP	Standard Operating Procedure
SOPA	Schedule of Proposed Actions
SO <sub>x</sub>	Sulfur oxide
SQRU	Scenic Quality Rating Unit
SR	State Route
SRMA	Special Recreation Management Area
SRP	Special Recreation Permit
SUP	Special Use Permit
SVP	Sensitive Viewing Platform
SWPPP	Stormwater Pollution Prevention Plan
SWReGAP	Southwest Regional Gap Analysis Project
TAC	Technical Advisory Committee
TFO	Tonopah Field Office
THPO	Tribal Historic Preservation Office
TMDL	Total maximum daily load
tpy	Tons per year
TUSK	Tule Springs Fossil Beds National Monument
UNLV	University of Nevada Las Vegas
UPRR	Union Pacific Railroad
US	United States

## List of Acronyms and Abbreviations (continued)

US 6	US Route 6
US 95	US Highway 95
USACE	United States Army Corps of Engineers
USAFWC	United States Air Force Warfare Center
USC	United States Code
USDA	United States Department of Agriculture
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VAPE	Visual Area of Potential Effects
VAU	Visual assessment unit
VIA	Visual Impact Assessment
VOC	Volatile Organic Compounds
VRI	Visual Resource Inventory
VRM	Visual Resource Management
VRP	Visual Resource Program
WAPA	Western Area Power Administration
WB	Westbound
WECC	Western Electricity Coordinating Council
WEG	Wind Erodibility Group
WFRHBA	Wild Free-Roaming Horses and Burros Act of 1971
WMA	Wildlife Management Area
WSA	Wilderness Study Area
WUS	Waters of the United States
WVEC	West-wide Energy Corridor



**GREENLINK WEST TRANSMISSION PROJECT  
FINAL ENVIRONMENTAL IMPACT STATEMENT and PROPOSED RESOURCE MANAGEMENT PLAN  
AMENDMENTS**

US Department of the Interior  
Bureau of Land Management  
Nevada State Office  
1340 Financial Boulevard  
Reno, Nevada 890502-7147  
DOI-BLM-NV-0000-2022-0004-EIS

June 2024

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**Lead Agency:** US Department of the Interior, Bureau of Land Management, Nevada State Office

**Type of Action:** ( ) Draft (X) Final

**Cooperating Agencies:** Advisory Council on Historic Preservation, Bureau of Indian Affairs – Pacific Region, Bureau of Indian Affairs – Western Region, Clark County, City of North Las Vegas, City of Reno, Department of the Air Force, Esmeralda County, Las Vegas Tribe of Paiute Indians of the Las Vegas Indian Colony, National Nuclear Security Administration, National Park Service, Nevada Department of Transportation, Nevada Department of Wildlife, Nevada Division of Environmental Protection, Nevada Division of Minerals, Nevada Division of State Lands, Nye County, Timbisha Shoshone Tribe, Town of Tonopah, US Army Air National Guard, US Environmental Protection Agency – Region 9, US Fish and Wildlife Service, and Walker River Paiute Tribe

**Project Location:** Clark, Nye, Esmeralda, Mineral, Lyon, Storey, and Washoe counties, Nevada

**For Further Information Contact:** Bureau of Land Management  
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## Abstract

The Final Environmental Impact Statement and Proposed Resource Management Plan Amendments (Final EIS/Proposed RMPA) document analyzes the impacts related to the development of the Greenlink West Transmission Project (GLWP) proposed by Nevada Power Company and Sierra Pacific Power Company, doing business as NV Energy (Proponent). The GLWP would be an approximately 472-mile system of new 525-kV, 345-kV, 230-kV, and 120-kV overhead transmission facilities, substations, and ancillary project components constructed between North Las Vegas and Reno, Nevada. The GLWP would be located predominantly on Bureau of Land Management (BLM)-administered lands with small portions crossing Department of Defense lands, Department of Energy lands, National Park Service (Tule Springs Fossil Beds National Monument) lands, lands held in trust by the Bureau of Indian Affairs, Nevada Division of State Lands, Clark County lands, and privately owned lands. The Proponent has requested a 600-foot-wide (1,200 feet in areas with steep terrain) temporary right-of-way (ROW) for construction and a 30-year permanent ROW of a maximum 200-foot-wide ROW for the 525-kV transmission lines, 160-foot-wide ROW for the 345-kV transmission lines, and 50-foot-wide ROW for the distribution lines for operations and maintenance of the GLWP.

The BLM has prepared this Final EIS/Proposed RMPA with input from Cooperating Agencies, consulting parties, Native American Tribes, and public to address the direct, indirect, and cumulative impacts of the GLWP. This Final EIS/Proposed RMPA describes the relevant resources/uses that would be impacted including biological, cultural,

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visual, paleontological, socioeconomic resources; Environmental Justice; and National Historic Trails in and around the GLWP area. The EIS considers the impacts of the Proposed Action and 34 other Action Alternatives as well as the “No Action” Alternative. Of the 34 Action Alternatives considered, 12 were evaluated in detail in the Final EIS/Proposed RMPA. Portions of GLWP-related activities would not be in conformance with certain planning decisions (or allocations) in the applicable Resource Management Plans (RMPs) for Carson City, Tonopah, and Las Vegas Field Offices. Proposed amendments would modify Section 368 corridors and Visual Resource Management class objectives. Amendments to those RMPs are analyzed in this Final EIS/Proposed RMPA.

Pursuant to 36 CFR Part 800 and as the lead federal agency for the undertaking, the BLM has initiated Section 106 consultation and participated in ongoing consultation throughout the NEPA substitution process. Consultation was conducted under the National Historic Preservation Act substitution regulations located at 36 CFR 800.8(c). The BLM formally initiated consultation with American Indian Tribes that had previously expressed claims to cultural affiliation with the GLWP area to inform them of the project and to inquire about their interest in participating in government-to-government consultation. Formal government-to-government virtual meetings have been held with Native American Tribes.

In addition to Section 106 consultation, the BLM requested formal consultation under Section 7 of the Endangered Species Act to the United States Fish and Wildlife Service to address species with the potential to occur in the area of the BLM Preferred Alternative for the GLWP. The BLM requested consultation for the threatened Ash Meadows blazingstar, the threatened Ash Meadows sunray, the threatened Ash Meadows ivesia, the threatened Ash Meadows milkvetch, the proposed threatened Bi-State sage-grouse, the threatened Mojave desert tortoise, the endangered southwestern willow flycatcher, the threatened spring-loving centaury, and the threatened yellow-billed cuckoo.

### **Protest Period**

A person who meets the condition outlined in 43 CFR 1610.5-2 and wishes to file a protest must do so within 30 calendar days of the date that the United States Environmental Protection Agency publishes the Notice of Availability in the *Federal Register*. Instructions for filing a protest with the Director of the BLM regarding the GLWP Final EIS/Proposed RMPA may be found online at: <https://www.blm.gov/filing-a-plan-protest>.

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# United States Department of the Interior



BUREAU OF LAND MANAGEMENT  
Nevada State Office  
1340 Financial Boulevard  
Reno, Nevada 89502-7147  
[https://www.blm.golllloeva\\_da](https://www.blm.golllloeva_da)

In Reply Refer To:

NVN-99863 & NVN-99863-01  
NVN-098060  
2800 (NV930)

June 14, 2024

Dear Reader:

Enclosed for your review is the Final Environmental Impact Statement and Proposed Resource Management Plan Amendments (Final EIS/Proposed RMPA) for the Greenlink West Transmission Project (GLWP or Project). This Final EIS/Proposed RMPA was prepared by the Department of the Interior, Bureau of Land Management (BLM) in compliance with the Federal Land Policy and Management Act of 1976 (FLPMA) and the National Environmental Policy Act (NEPA) of 1969. The Final EIS/Proposed RMPA also conforms to the BLM's requirements for NEPA implementation as described in the Department of the Interior's NEPA regulations and the BLM NEPA handbook. The NEPA process for evaluating the GLWP began on May 2, 2022, when a Notice of Intent (NOI) to prepare an EIS was published in the *Federal Register*.

The BLM has elected to use the NEPA process and this Final EIS/Proposed RMPA to comply with the requirements of Section 106 of the National Historic Preservation Act (NHPA), 54 United States Code § 306108, consistent with the Advisory Council on Historic Preservation's (ACHP) regulations implementing Section 106 (36 Code of Federal Regulations [CFR] § 800.8(c)). The BLM notified the ACHP and the Nevada State Historic Preservation Office in advance of its intention to utilize the substitution process and is satisfying the standards set forth in the Section 106 regulations.

The Final EIS/Proposed RMPA has been prepared to analyze potential impacts of the right-of-way (ROW) application submitted by Nevada Power Company and Sierra Pacific Power Company, doing business as NV Energy (Proponent). The GLWP would include an approximately 472-mile system of new 525-kilovolt (kV), 345-kV, 230-kV, and 120-kV overhead transmission facilities, substations, and ancillary project components between North Las Vegas and Reno, Nevada, in Clark, Nye, Esmeralda, Mineral, Lyon, Storey, and Washoe counties. The Proponent has requested a 600-foot-wide (1,200 feet in areas with steep terrain) temporary ROW for construction and a maximum 200-foot-wide ROW for the 525-kV transmission lines, 160-foot-wide ROW for the 345-kV transmission lines, and 50-foot-wide ROW for the distribution lines for operations and maintenance (O&M) of the GLWP. The GLWP would be located predominantly on BLM-administered lands with smaller portions crossing Department of Defense lands, Department of Energy (DOE) lands, National Park Service (NPS) Tule Springs Fossil Beds National Monument (TUSK) lands, Bureau of Indian Affairs (BIA) lands, Nevada Division of State Lands, Clark County lands, and privately owned lands.

The Proponent filed an Application for Transportation, Utility Systems, Telecommunications, and Facilities on Federal Lands and Property (Standard Form 299) and a Preliminary Plan of Development (POD) with the BLM on July 22, 2020, for a FLPMA ROW authorization. The Proponent also filed a Standard Form 299 and Preliminary POD with the NPS on May 8, 2023, for a 105-foot ROW on the TUSK for the O&M of a 525-kV transmission line. Additionally, once the Proponent receives Tribal resolutions from applicable Tribal councils, the Proponent will file a request for ROWs from the BIA. While agency authorities and policies vary regarding the term (duration) of a ROW, the Proponent has requested a term of 30-years from each of the federal ROW agencies (except for the term of the temporary ROWs).

In preparing the Final EIS/Proposed RMPA, the BLM has developed a range of options to resolve resource conflicts by considering: 1) issues raised through the public scoping and public comment periods and consultation and coordination with Cooperating Agencies, consulting parties, and American Indian Tribes; 2) issues raised by agency resource specialists; and 3) applicable planning criteria. This process has resulted in the development of a wide range of alternatives in addition to the Proposed Action (Action Alternatives). The No Action Alternative is also addressed, which constitutes a continuation of current trends and uses in the GLWP area. These Action Alternatives are described in Chapter 2: Proposed Action and Alternatives.

Chapter 3: Affected Environment and Environmental Consequences presents the affected environment and analyzes the potential impacts on resources or resource uses from implementation of the Action Alternatives. Chapter 4: Resource Management Plan (Land Use Plan Amendments) considers the BLM land use plan amendments associated with the Action Alternatives proposed in Chapter 2. Chapter 5: Consultations and Coordination describes the BLM's consultation and coordination efforts throughout the process.

In response to the Proponent's ROW application, the BLM's decision will be to approve, modify, or deny the ROW on BLM-administered lands for the construction O&M and decommissioning of the GLWP transmission line and associated facilities. The BIA's decision will be to deny, grant, or grant with modifications the ROW agreements for portions of the GLWP located on the Las Vegas Paiute Reservation - Snow Mountain and Walker River Indian Reservations. The DOE's decision will be to approve or deny the application requesting an easement to authorize use of National Nuclear Security Administration-administered lands for the GLWP O&M on a portion of the Nevada National Security Site. The NPS' decision will be to approve or deny the application requesting a ROW permit to authorize use of NPS-administered lands for the GLWP O&M and approve with conditions deemed necessary by the NPS or deny, a temporary construction permit for GLWP construction activities.

Implementation decisions, such as granting or denying a ROW, are not subject to protest under BLM planning regulations but are subject to an administrative review process following the issuance of the Record of Decision (ROD). The Final EIS/Proposed RMPA includes land use planning actions. A person who meets the conditions outlined in 43 CFR 1610.5-2 and wishes to file a protest must do so within 30 calendar days of the date that the Environmental Protection Agency publishes its Notice of Availability in the *Federal Register*. Instructions for filing a protest with the Director of the BLM regarding the Final EIS/Proposed RMPA may be found online at <https://www.blm.gov/filing-a-plan-protest> and at 43 CFR 1610.5-2.


Before including your address, telephone number, email address, or other personal identifying information, be advised that your entire comment may be made publicly available at any time.

You may request that the BLM withhold your personal identifying information from public review, but the BLM cannot guarantee that it will be possible. All submissions from organizations, businesses, and/or individuals that identify as representatives of organizations or business will be publicly available in their entirety.

The BLM Director will render a written decision on each protest. The decision will be mailed to the protesting party. The decision of the BLM Director shall be the final decision of the Department of the Interior on each protest. Responses to protest issues will be compiled and formalized in a Director's Protest Resolution Report made available following issuance of the decisions. Upon resolution of all protests, the BLM will issue the ROD. All Project documents will be made available electronically on the BLM National NEPA Register website at: <https://eplanning.blm.gov/eplanning-ui/project/2017391/510>.

Thank you for your continued interest in the Greenlink West Transmission Project.

Sincerely,

  
For John K. Raby  
Nevada State Director

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# EXECUTIVE SUMMARY

## I. INTRODUCTION

Nevada Power Company and Sierra Pacific Power Company, doing business as NV Energy (Proponent), are proposing to build the Greenlink West Transmission Project (GLWP), an approximately 472-mile system of new 525 kilovolt (kV), 345-kV, 230-kV, and 120-kV overhead electric transmission facilities, substations, and ancillary project components.

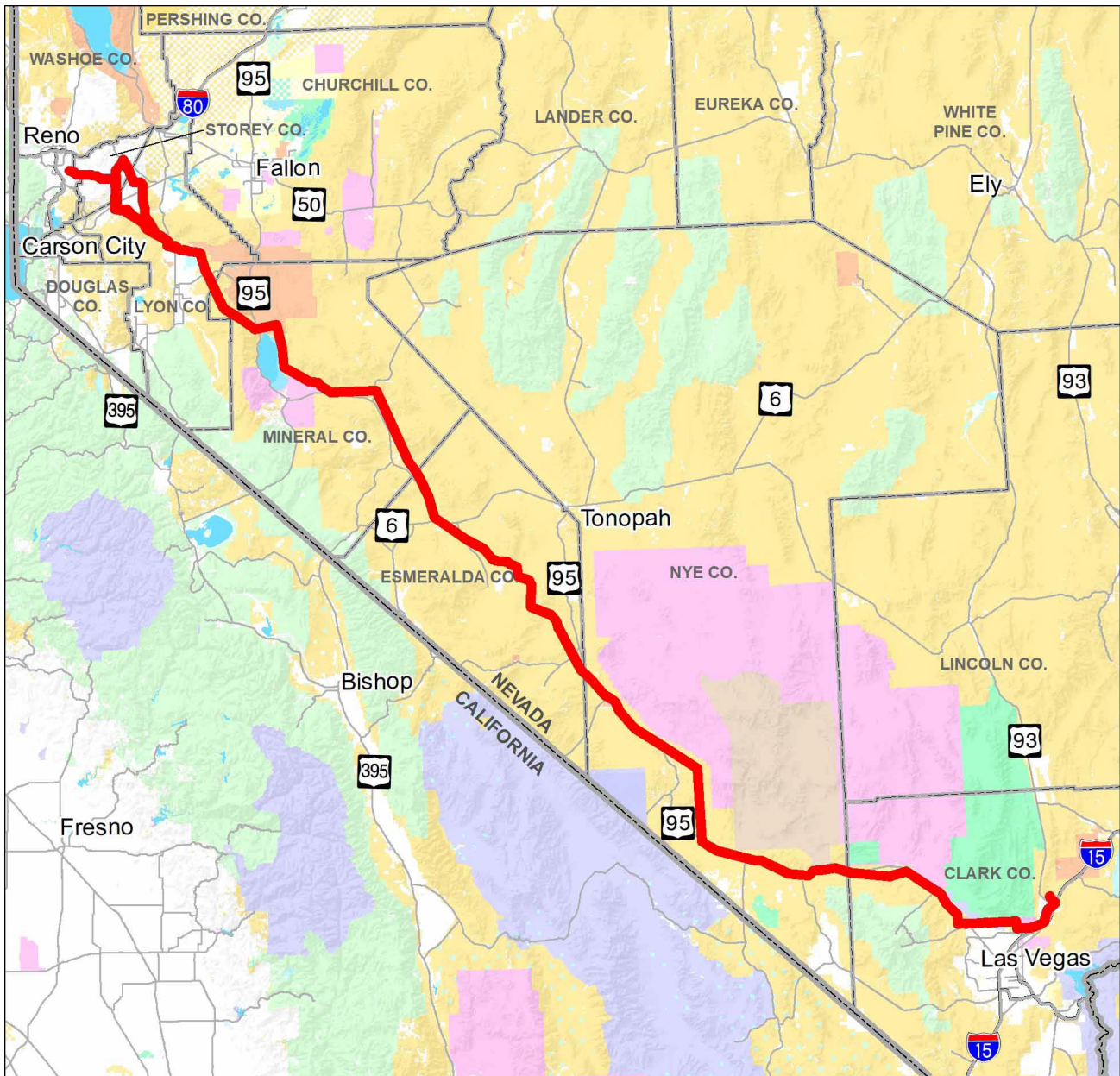
The GLWP would be constructed in western Nevada between Las Vegas and Reno in Clark, Nye, Esmeralda, Mineral, Lyon, Storey, and Washoe counties (Figure EX-1). The GLWP would be located predominantly on lands administered by the Bureau of Land Management (BLM) with smaller portions of the project crossing Department of Defense (DOD), Bureau of Indian Affairs (BIA), National Park Service (NPS), Department of Energy (DOE), Nevada Division of State Lands (NDSL), and Clark County lands, in addition to privately owned lands.

The BLM is the lead federal agency for the GLWP under the National Environmental Policy Act (NEPA) and has coordinated the preparation of the environmental analysis contained in this Final Environmental Impact Statement/Proposed Resource Management Plan Amendments (Final EIS/Proposed RMPA). The BLM is the lead federal agency for compliance with Section 106 of the National Historic Preservation Act (NHPA) and Section 7 of the Endangered Species Act (ESA). The BLM invited various federal, state, and county agencies and Tribal governments to participate as Cooperating Agencies and consulting parties.


## II. RESOURCE MANAGEMENT PLAN (LAND USE PLAN AMENDMENTS)

In its decision to issue a right-of-way (ROW) grant, the BLM must also consider existing Resource Management Plans (RMPs) and other BLM land use plans in terms of how the proposed authorizations and actions either conform or require a Resource Management Plan Amendment (RMPA) (43 CFR 1610.0-5(b)). In accordance with the Federal Land Policy and Management Act (FLPMA), the BLM must “develop, maintain, and when appropriate, revise land use plans” (43 USC 1712). Actions that result in a change in the scope of resource uses, terms, conditions, and decisions of federal agency land use plans may require amendment of one or more of the plans, including the approval of the GLWP.

A number of the Action Alternatives analyzed in the Draft Environmental Impact Statement/Resource Management Plan Amendments (Draft EIS/RMPA) would require Plan amendments and were subject to public review during the 90-day public comment period. Chapter 4 the Draft EIS/RMPA described the plan amendments required under each alternative followed by an analysis of the environmental impacts and planning implications associated with adoption of these amendments. The specific land use plan amendments that are needed will depend upon which Action Alternative is selected in the agencies’ Records of Decision (ROD). In the Final EIS/Proposed RMPA, the BLM has identified the agency preferred alternative and the requisite proposed plan amendments necessary to implement that alternative. The Final EIS/Proposed RMPA identifies the proposed amendments that the BLM intends to select. Plan amendments would be implemented effective immediately upon signing of the ROD.



**Legend**

- |  |   |
|--|---|
|  Proposed Action              |  US Forest Service     |
|  Transmission Line            |  Indian Reservation    |
|  Bureau of Land Management    |  National Park Service |
|  Department of Energy         |  State                 |
|  Bureau of Reclamation        |  Private               |
|  Department of Defense        |  Water                 |
|  US Fish and Wildlife Service |   |



Scale: 1:3,000,000

0 10 20 30 40 mi

No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure EX-1. GLWP Location**



The BLM has determined that portions of GLWP Action Alternatives would not conform to certain aspects of the Tonopah RMP (1997), Las Vegas RMP (1998a), Carson City Field Office Consolidated RMP (2001), and the West-wide Energy Corridor (WWEC) Approved RMPA/ROD (2009). Amendments to the RMPs would include modifying the location of the existing WWEC, changing the Visual Resource Management (VRM) Class of the WWEC, and amending the VRM Class as a result of nonconformance with GLWP components within the GLWP area<sup>1</sup>.

### **III. 36 CFR 800.8(c) COORDINATION WITH THE NEPA SUBSTITUTION PROCESS**

The BLM has elected to use the NEPA process to comply with the requirements of Section 106 of the NHPA, 54 United States Code (USC) § 306108 (Section 106), consistent with the Advisory Council on Historic Preservation's (ACHP) regulations implementing Section 106 (36 Code of Federal Regulations [CFR] § 800.8(c)). Federal agencies' statutory obligations under NEPA and NHPA are independent, but integrating the processes creates efficiencies and supports a broad discussion of effects to the human environment. Using the Final EIS/Proposed RMPA to comply with Section 106 is referred to as the "NEPA substitution process" and allows the BLM to consider cultural resources early in the planning stages as part of the robust NEPA process. Resolution of adverse effects will be documented in the binding ROD and as conditions of granting/permitting ROW approval rather than developing separate Memorandum of Understanding or Programmatic Agreement. The BLM notified the ACHP and the Nevada State Historic Preservation Office (SHPO) in advance of its intention to use the substitution process and is satisfying the standards set forth in Section 106 regulations.

### **IV. PROPONENT GOALS**

Under Federal Energy Regulatory Commission (FERC) regulations, public utility companies like the Proponent must plan and construct transmission facilities to deliver the projected electric demand in Nevada. The Proponent is also governed by the Western Electricity Coordinating Council standards and criteria, which require transmission systems be planned and constructed with sufficient levels of redundancy to maintain reliable operation in the event of a loss or outage of system elements. The Proponent's goals are to meet the electrical demand of the end users and respond to electrical service requests, to improve overall system reliability, and to provide regional redundancy.

### **V. PURPOSE AND NEED FOR THE ACTION**

#### **A. Bureau of Land Management**

The BLM's purpose is to respond to the ROW application submitted by the Proponent to construct, operate, maintain, and decommission a system of transmission facilities. The need for this action is to fulfill the BLM's responsibility under FLPMA and its ROW regulations to manage the public lands for multiple uses, including the transmission of electric energy. The BLM is also responsible for ensuring that the Proponent complies with all applicable FERC requirements under the Federal Power Act. Additionally, the BLM's need for this action is guided by the Energy Policy Act of 2005 (EPAct), which directs the agency to expedite applications for the construction of electricity transmission and distribution facilities.

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<sup>1</sup> In this EIS, this 10-mile-wide corridor (approximately 4,315 square miles or 2,761,704 acres) is referred to as the "GLWP area."

## **B. Bureau of Indian Affairs**

The BIA's purpose is to respond to the Proponent's ROW application to construct, operate, maintain, and decommission a transmission line over or across lands held in trust for the Walker River Paiute Tribe and the Las Vegas Tribe of Paiute Indians of the Las Vegas Indian Colony (Las Vegas Paiute Tribe). The BIA's need for this action is to fulfill its responsibility under 25 CFR Part 169 (Rights-of-Way over Indian Land) regulations to review and approve actions on Tribal trust lands. The BIA's purpose and need, pursuant to 25 USC 415, is to deny, grant, or grant with modifications the ROW agreements between the Proponent and each of these two Tribes. The final ROW grant would include any restrictions or conditions imposed in consent documents between the Proponent and respective Walker River and the Proponent and the Las Vegas Paiute Tribe.

## **C. National Park Service**

The NPS's purpose, as a Department of Interior agency with a NEPA compliance requirement, is to respond to the application submitted by the Proponent to operate and maintain a transmission line over or across administered lands designated to conserve and protect unique and nationally important paleontological resources. The need for this action is to fulfill the NPS responsibility under NPS ROW regulations to manage Tule Springs Fossil Beds National Monument (TUSK) in compliance with the 2015 National Defense Authorization Act (Public Law 113-291) enabling legislation and the NPS 2006 Management Policies. A Special Use Permit (SUP) will be required for construction per the Office of Management Budget Control Number 1024-0026, 54 USC 100751(a) Regulations; 54 USC 103104 (Cost Recovery).

## **D. Department of Energy – National Nuclear Security Administration**

The National Nuclear Security Administration's (NNSA) purpose is to respond to the Proponent's ROW application to construct, operate, and maintain a transmission line over or across NNSA-administered lands. The NNSA is authorized to grant easements for ROWs by the Atomic Energy Act Section 161q (42 USC 2201(q)). A Preliminary Real Estate Plan in accordance with the NNSA Real Property Asset Management Guide would need to be prepared.

## **E. Decisions to be Made**

The BLM, BIA, NPS, and DOE would decide whether to approve, modify, or deny the ROW applications to construct and operate a transmission line on public lands. The BLM, BIA, NPS, and DOE would also use this Final EIS/Proposed RMPA to comply with NEPA and other applicable laws. The other Cooperating Agencies could use this information to support their analyses and decisions, as needed.

## **VI. CONSULTATION AND COORDINATION**

The BLM has formally and informally involved, consulted, and coordinated with federal, state, and local agencies; Native American Tribes; and the public. These efforts were aimed at informing the public about the GLWP and soliciting input to assist in analysis and decision-making. Consultation, coordination, and public participation efforts began prior to the start of the official NEPA process. Agencies and organizations that have jurisdiction and/or special expertise in the GLWP were contacted prior to scoping, at the start of scoping, during resource inventory, and before the publication of the Draft EIS/RMPA and Final EIS/Proposed RMPA. Twenty-four agencies have accepted the invitation to participate as Cooperating Agencies and include federal, Native American Tribes, state, municipal, and counties.

## **A. Section 7 of the Endangered Species Act**

The BLM invited the United States Fish and Wildlife Service (USFWS) to participate as a Cooperating Agency on April 1, 2021. Since then, the BLM has met with the USFWS on an ongoing basis to identify ESA-listed species and other sensitive biological resources. The BLM submitted a Biological Assessment (BA) on July 6, 2023, to the USFWS that addressed federally listed species that would be affected by the BLM Preferred Alternative in the Draft EIS/RMPA. The USFWS subsequently requested that additional federally listed plant species be evaluated in the BA. The BLM submitted a revised BA on February 6, 2024, which initiated formal consultation with the USFWS under Section 7 of the ESA. The BLM requested consultation for the threatened Ash Meadows blazingstar, the threatened Ash Meadows sunray, the threatened Ash Meadows ivesia, the threatened Ash Meadows milkvetch, the proposed threatened Bi-State sage-grouse, the threatened Mojave desert tortoise, the endangered southwestern willow flycatcher, the threatened spring-loving centauray, and the threatened yellow-billed cuckoo. The BLM has received a Biological Opinion for this project (File No. 2024-0070122) (USFWS 2024a), which is provided on the BLM's National NEPA Register site for the GLWP.

## **B. Section 106 of the National Historic Preservation Act**

In accordance with Section 106, federal agencies are required to consider the effects of the agencies' undertakings on historic properties listed in, or eligible for listing in, the NRHP and the need for meaningful consultation. Pursuant to 36 CFR Part 800, the BLM invited the Nevada SHPO, THPOs, ACHP, Native American Tribes, and other parties to consult; initiated Section 106 consultation; and participated in ongoing consultation throughout the project. The BLM conducted consultation to identify historic properties, preliminary determinations of effect, and preliminary treatment methods to resolve adverse effects to historic properties for the undertaking. In February and March 2024, the BLM held Section 106 coordination meetings with consulting parties prior to, and during, the 30-day Section 106 consultation period for input. During the consultation period, the consulting parties were provided the Class III inventory and visual effects assessment reports, site forms, and the GLWP Historic Properties Treatment Plan (HPTP).

## **C. Government-to-Government Consultation**

Statutes and regulations require federal agencies to consult with Native American Tribes on a government-to-government basis on federal actions or undertakings that may affect "trust assets," including cultural and natural resources of Tribal concern. Government-to-government consultation involves the process of seeking, discussing, and considering Tribes' views on policies, undertakings, and decisions. The BLM formally initiated consultation with Native American Tribes that had previously expressed claims to cultural affiliation with the GLWP area to inform them of the project and to inquire about their interest in continuing government-to-government consultation. Three formal government-to-government virtual meetings with BLM Nevada State Director Jon K. Raby were conducted on March 24, 2022, with representatives from 12 Tribes; on May 23, 2023, with representatives from 7 Tribes; and on January 19, 2024, with representatives from 8 Tribes. The BLM will continue to consult and coordinate with the Tribes and any additional Native American Tribes who request government-to-government consultation for the GLWP.

## **D. Public Coordination**

### **1. Input Workshops**

A series of in-person and virtual public input workshops were held in June 2021, November 2021, and February 2022, prior to the publishing of the Notice of Intent (NOI). The workshops were designed to

promote informal conversations and encourage the public to identify issues of concern prior to the EIS scoping period. In total, 151 people signed in at the input workshops and expressed concerns regarding potential impacts to the TUSK, special status species, socioeconomic impacts to rural communities (specifically Beatty), and impacts to scenic/visual quality. Additional concerns included the amount of and potential impacts from current solar applications in the GLWP area.

## **2. Scoping**

Following the submission of the initial ROW application on September 22, 2020, the BLM published a NOI to prepare the GLWP EIS in the *Federal Register* on May 2, 2022. Publication of the NOI began the scoping process. Scoping notifications were posted on the BLM National NEPA Register and were sent to 298 individuals, organizations, agency representatives, and Native American Tribes. Scoping meetings were held from April 13-20, 2022, in North Las Vegas, Beatty, Tonopah, and Reno. Comments received during scoping were similar to the public input workshops and included concerns regarding impacts to TUSK and the amount of public lands with current renewable energy applications.

## **3. Public Comment on Draft EIS/RMPA**

Publication of the Notice of Availability of the Draft EIS/RMPA on May 26, 2023, in the US Environmental Protection Agency *Federal Register* initiated the 90-day public review and comment period under the BLM Land Use Planning regulations (43 CFR 1610.2) and NEPA. The Draft EIS/RMPA was posted to the BLM National NEPA Register and was available to agencies, interested organizations, and individuals for review and comment. The BLM held in-person public meetings in North Las Vegas, Beatty, and Reno on July 11, 12, and 13, 2023, respectively, as well as virtual meetings on June 15 and August 2, 2023. The purpose of the meetings was to provide an overview of the project, present analyses discussed in the Draft EIS/RMPA, and gather public comments on the content of the Draft EIS/RMPA. The comment period closed on August 23, 2023; comments received on the Draft EIS/RMPA and responses are provided in Appendix Z.

# **VII. ACTION ALTERNATIVES**

## **A. Proposed Action**

The 525-kV facilities would begin at the Fort Churchill Substation located approximately 10 miles north of Yerington in Lyon County; traverse approximately 358.1 miles through portions of Lyon, Mineral, Esmeralda, Nye, and Clark counties; and terminate at the Harry Allen Substation approximately 10 miles north of Las Vegas, Clark County. The 525-kV transmission line would generally follow US Highway 95 (US 95) and various WWEC corridors (also known as Section 368 corridors) for most of its length. The 525-kV transmission line would cross approximately 320.4 miles of BLM-administered land, approximately 3.9 miles of DOD land, approximately 1.5 miles of NPS-administered land, approximately 21.2 miles of Tribal land, approximately 4.9 miles of Nevada state land, approximately 2.0 miles of Clark County land, and approximately 4.1 miles of private land.

The three proposed 345-kV facilities would begin at the Fort Churchill Substation and traverse approximately 33 to 44 miles through portions of Lyon, Storey, and Washoe counties. These 345-kV lines would reinforce the Reno area transmission system for redundancy and reliability and are critical to distributing the 525-kV energy to the major load centers. Two 345-kV lines would terminate at the existing Comstock Meadows Substation approximately 12 miles northwest of Silver Springs in Lyon County and the third would terminate at the existing Mira Loma Substation in south Reno, Washoe County. The three proposed 345-kV facilities would cross approximately 44.4 miles of BLM-administered land and approximately 69.5 miles of private land.

The Proponent has requested a 600-foot-wide (1,200 feet in areas with steep terrain) temporary ROW for construction and a 30-year permanent ROW of a maximum 200-foot-wide ROW for the 525-kV transmission lines, 160-foot-wide ROW for the 345-kV transmission lines, and 50-foot-wide ROW for the distribution lines for operations and maintenance (O&M) of the GLWP. For the purpose of this EIS, the term “permanent” ROW refers to 30-years with option to renew.

## B. Proposed Action Alternatives

A range of transmission, substation, and microwave site alternatives were analyzed in the Draft EIS/RMPA, including the Proposed Action and the No Action Alternative. Potential transmission alternatives were grouped into smaller geographic areas, referred to as route groups, to allow for localized comparisons among the various alternative routes (Table EX-1). The Action Alternatives were developed based on input from the public, Cooperating Agencies, the BLM, Native American Tribes, and the Proponent and are focused on nine geographic areas of transmission line route adjustments.

**Table EX-1. Transmission Line Route Group Action Alternatives Considered**

Route Group	Transmission Line Route Alternatives
Losee	Alternative A
TUSK	Alternatives A, B, D, E, F, G, and Initial Proposed Action <sup>a</sup>
Beatty	Alternatives A, B, C, D, E, F, G, H, I, J, K, and L
Scotty’s Junction	Alternatives A and B
Goldfield-Tonopah	Alternative A, B, C, and D
Walker River	Alternative A
Mason Valley WMA	Alternatives A, B, and C
Carson River	Alternatives A, B, and C
Underground Fort Churchill to Harry Allen	Alternative A

*Table Acronym(s):* TUSK – Tule Springs Fossil Beds National Monument; WMA – Wildlife Management Area

*Table Note(s):* <sup>a</sup>TUSK Initial Proposed Action Transmission Alternative was identified as the Proposed Action in the Proponent’s Preliminary Plan of Development (POD) provided with the submittal of the GLWP Standard Form (SF-299). In subsequent revisions to the GLWP Preliminary POD, the Proponent changed their Proposed Action to TUSK Transmission Alternative C because it would have less of a footprint within the TUSK.

## C. Alternatives Considered but Eliminated

Specific Action Alternatives were eliminated from detailed analysis because they would be ineffective in responding to the purpose and need, technically or economically infeasible, substantially similar in design to an alternative analyzed, or substantially similar to alternative(s) analyzed in terms of effects (BLM 2008a). Refer to Section 2.3 Alternatives Considered but Eliminated from Detailed Analysis for the rationale to eliminate the Action Alternatives from detailed evaluation through the Final EIS/Proposed RMPA.

## D. Comparison of Alternatives

In addition to the Proposed Action, the following transmission line route Action Alternatives listed in Table EX-2 are analyzed in detail in Chapter 3. Affected Environment and Environmental Consequences of this Final EIS/Proposed RMPA. Common start and end points were determined to compare the Action Alternatives within the same transmission route group. The number of alternatives within a given route group alternative includes the comparable segment of the Proposed Action.

**Table EX-2. Transmission Line Route Group Alternatives to be Fully Analyzed**

<b>Transmission Line Route Group</b>	<b>Alternative(s)</b>
Losee	Alternative A
TUSK	Alternative B
Beatty	Alternatives A, C, G, K, and L
Scotty's Junction	Alternatives A and B
Mason Valley WMA	Alternative A
Carson River	Alternatives A and C

*Table Acronym(s):* TUSK – Tule Springs Fossil Beds National Monument; WMA – Mason Valley Wildlife Management Area

Potential substation location alternatives were grouped into smaller geographic areas to allow for localized comparisons among the substation alternatives. In addition, the Amargosa microwave radio facility was evaluated at two different locations. All the substation and microwave alternatives are analyzed in detail.

The Action Alternatives carried forward are briefly discussed below. A detailed analysis of these alternatives by resource is provided in Chapter 3. Affected Environmental and Environmental Consequences, which includes a comparison table in Section 3.20 Comparison of Impacts by Alternative.

### **1. Losee Transmission Line Route Group Alternatives**

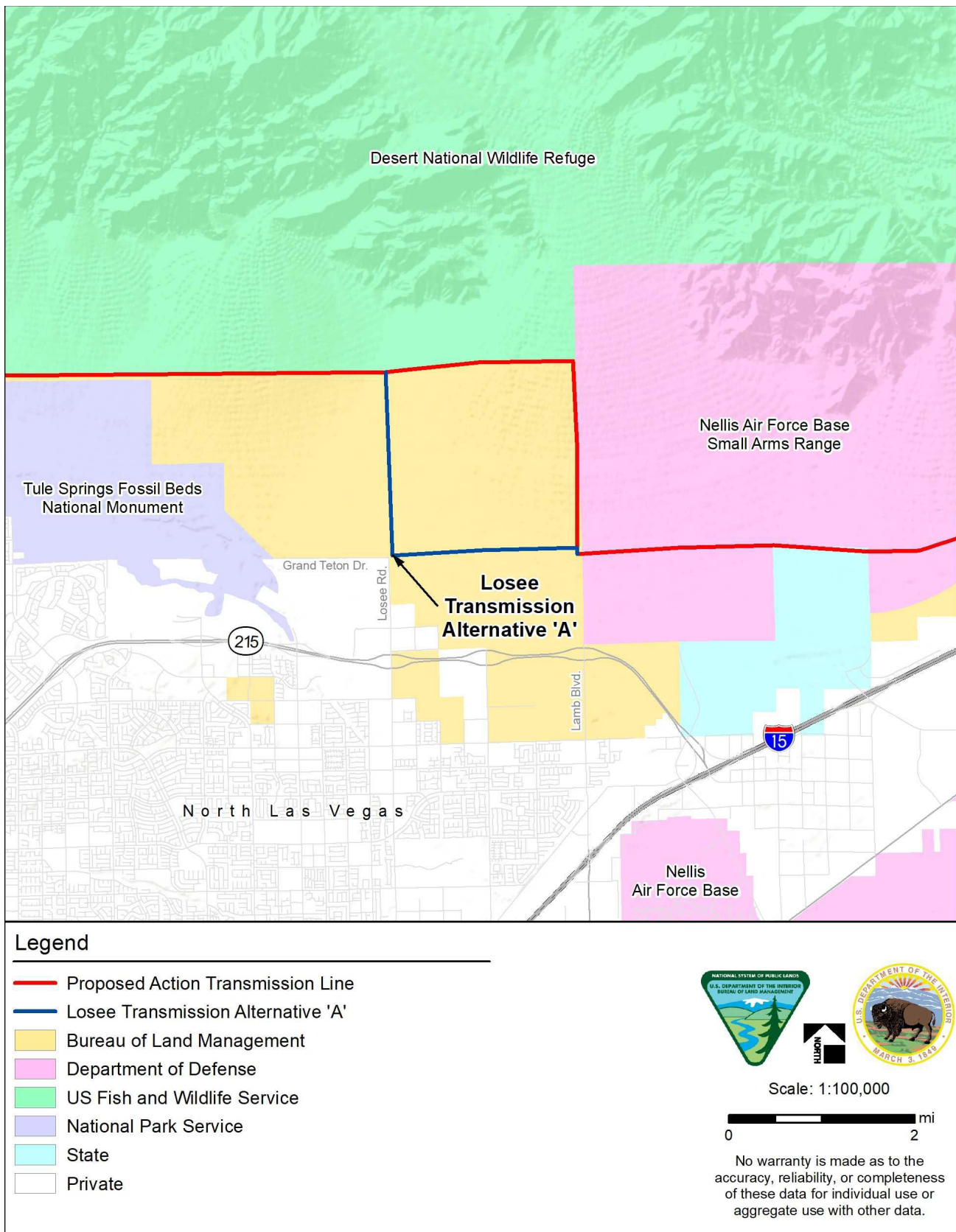
The Losee Transmission Line Route Group considers two different routes between North Lamb Boulevard and the Losee Road alignment extension (Figure EX-2). From east to west, the Proposed Action would be located along the extension of Grand Teton Drive, turn to travel north for approximately two miles along North Lamb Boulevard, adjacent to the Nellis Air Force Base (AFB) Small Arms Range. The Proposed Action would then turn west at the boundary of the Desert National Wildlife Refuge (NWR). Losee Transmission Alternative A would travel along the extension of Grand Teton Drive for an additional two miles before turning north on Losee Road.

### **2. TUSK Transmission Line Route Group Alternatives**

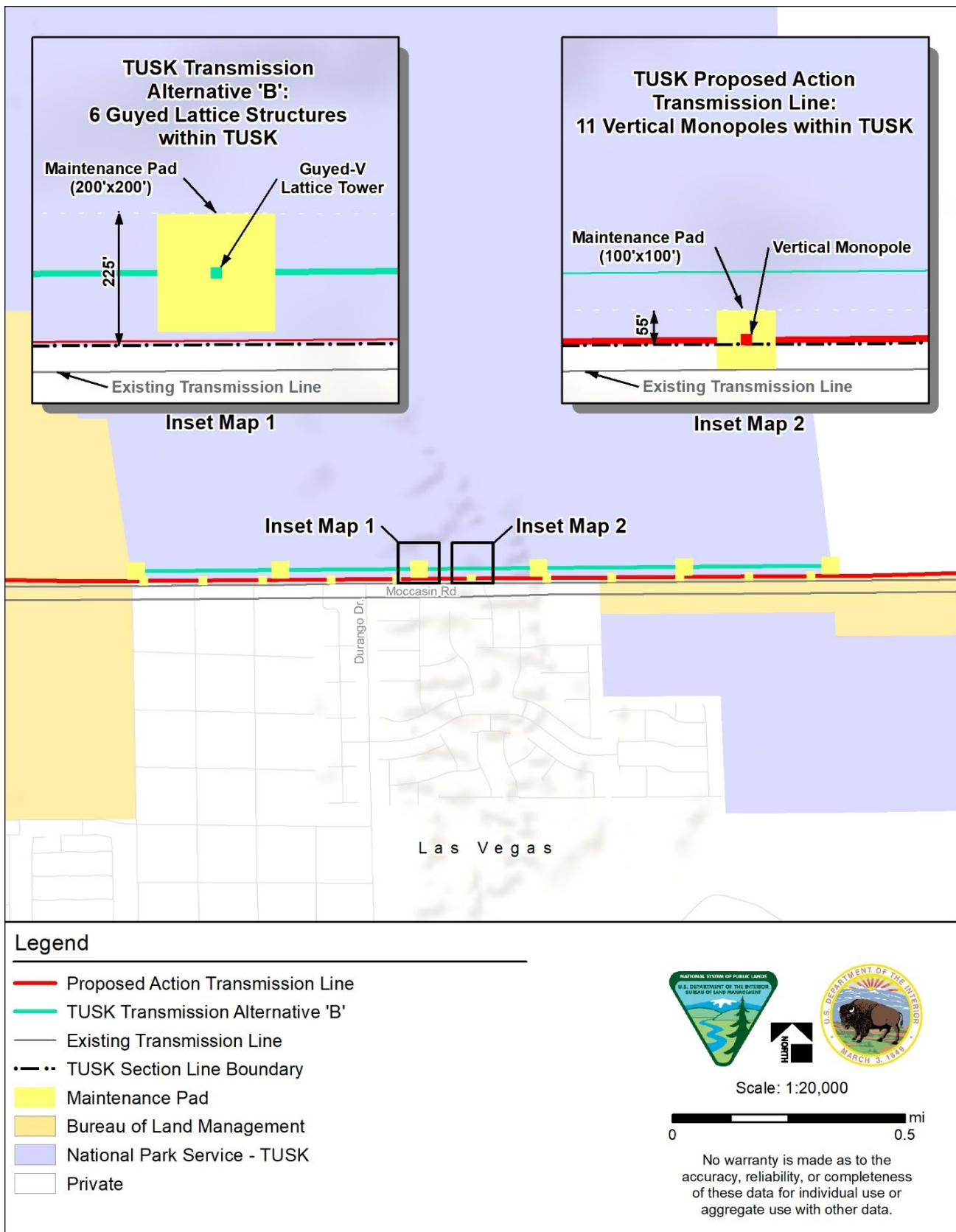
The TUSK Transmission Line Route Group include two alternatives, both generally located along the TUSK boundary adjacent to Moccasin Road (extension of El Capitan Way to the east for approximately 1.5 miles) (Figure EX-3). The Proposed Action would consist of 11 180-foot-tall vertical monopoles with only a portion of the structures constructed within TUSK, requiring 19.8 acres of permanent ROW. The TUSK Transmission Alternative B would consist of 6 150-foot-tall guyed-V wire-frame towers entirely constructed within TUSK, requiring 36.4 acres of permanent ROW.

### **3. Beatty Transmission Line Route Group Alternatives**

The Beatty Transmission Line Route Group includes six alternatives ranging from 25.4 miles to 27.5 miles in length. Collectively, the alternatives would cross US 95, proceed through Crater Flat, run east of Bare Mountain, cross Beatty Wash, and turn northwest before connecting back to the US 95 corridor south of Scotty's Junction (Figure EX-4). The Proposed Action and Beatty Transmission Alternatives A, K, and L would cross The Nature Conservancy's Gary and Lajetta Atwood Preserve (Atwood Preserve). These alternatives would either have physical structures within or span the Atwood Preserve, all requiring permanent ROW area for O&M. Beatty Transmission Alternatives C and G would avoid the Atwood Preserve. The Proposed Action and Beatty Transmission Alternatives A, and C would cross the Nevada Test and Training Range (NTTR) federal land transfer area. Beatty Transmission Alternatives K, G, and L would avoid the NTTR federal land transfer area. The Proposed Action and Beatty Transmission Alternatives A, C, K, and L would cross the Range 77A restricted military airspace. Beatty Transmission Alternative G would avoid the Range 77A restricted military airspace.

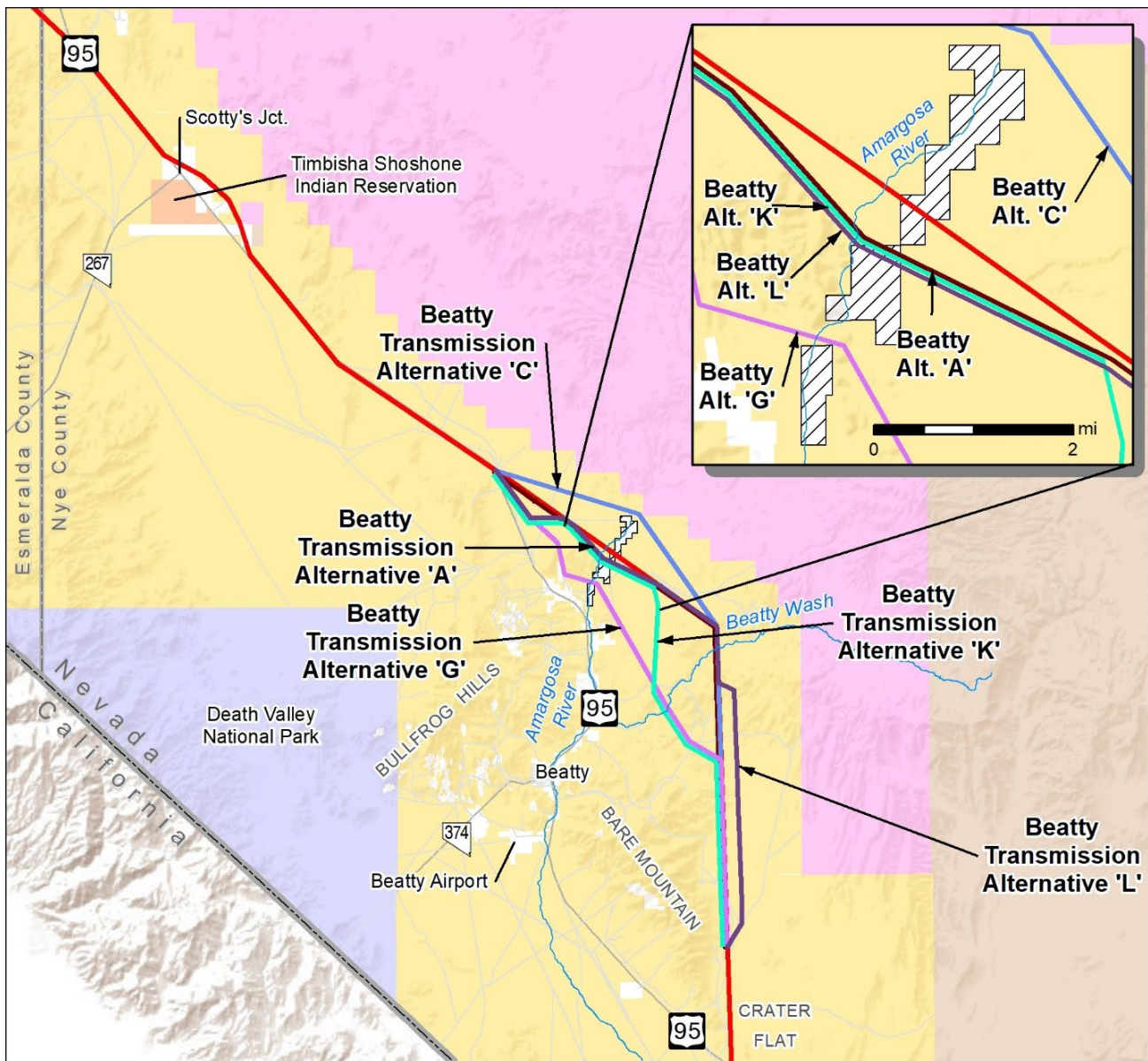


**Figure EX-2. Losee Transmission Line Route Group Alternatives**



**Figure EX-3. TUSK Transmission Line Route Group Alternatives**





**Legend**

- Proposed Action Transmission Line
- Beatty Transmission Line Alignment Alternative 'A'
- Beatty Transmission Line Alignment Alternative 'C'
- Beatty Transmission Line Alignment Alternative 'G'
- Beatty Transmission Line Alignment Alternative 'K'
- Beatty Transmission Line Alignment Alternative 'L'
- Atwood Preserve
- Bureau of Land Management
- Department of Energy
- Department of Defense
- Indian Reservation
- National Park Service
- Private



Scale: 1:500,000



No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure EX-4. Beatty Transmission Line Route Group Alternatives**

#### **4. Scotty's Junction Transmission Line Route Group Alternatives**

The Scotty's Junction Transmission Route Group includes three alternative route alignments, that would begin approximately 11 miles south of Scotty's Junction along the US 95 and extend approximately 4 miles north of Scotty's Junction at the intersection of US 95 and State Route (SR) 267 (Figure EX-5). Scotty's Junction Transmission Alternative A would stay directly adjacent to US 95, Scotty's Junction Transmission Alternative B would run northwest approximately three miles from the US 95 alignment, and the Proposed Action would extend northeast approximately one mile from US 95 alignment. The Proposed Action and Scotty's Junction Transmission Alternative A would avoid the Timbisha Shoshone Reservation. Scotty's Junction Transmission Alternative B would cross the Timbisha Shoshone Reservation land.

#### **5. Mason Valley Wildlife Management Area Transmission Line Route Group Alternatives**

The Mason Valley WMA Transmission Line Route Group includes two alternative alignments (Figure EX-6). The approximately 4.9-mile-long Proposed Action would cross the Mason Valley Wildlife Management Area (WMA) just north of the existing railroad line as it enters the new Fort Churchill Substation. The approximately 7.0-mile-long Mason Valley WMA Transmission Alternative A would diverge from the Proposed Action alignment at the railroad that runs along the northern boundary of the Mason Valley WMA before entering the new Fort Churchill Substation. This alternative would cross through the Mason Valley WMA and would require one turning structure in the WMA before connecting to the new substation.

#### **6. Carson River Transmission Line Route Group Alternatives**

The Carson River Transmission Line Route Group includes three alternatives between the new Fort Churchill Substation and Comstock Meadows and Mira Loma substations (Figure EX-7). The approximate 75.8-mile-long Carson River Alternative A would keep the three 345-kV transmission lines together (Fort Churchill to Comstock Meadows #1 and #2 and Fort Churchill to Mira Loma) after leaving the Fort Churchill Substation until after the lines cross the Carson River. After crossing the Carson River, Fort Churchill to Comstock Meadows #2 transmission line would turn east around Table Mountain before rejoining the Proposed Action alignment. The Proposed Action would be approximately 71.8 miles and generally have the same route as Carson River Alternative A except where the Fort Churchill to Comstock Meadows #2 transmission line crosses the Carson River. The Fort Churchill to Comstock Meadows #2 would cross downstream of the other two 345-kV transmission lines.

Carson River Alternative C would be approximately 82.5 miles and was developed to reduce impacts to roads and lands used for testing military equipment and to avoid Churchill Narrows buckwheat habitat, a proposed federally listed plant species. As part of Carson River Transmission Alternative C, the Fort Churchill to Comstock Meadows #2 transmission line would generally follow the other two 345-kV lines before turning northeast and crossing the Carson River. The Fort Churchill to Comstock Meadows #1 and the Fort Churchill to Mira Loma transmission line would largely follow a similar alignment as the Proposed Action and would cross the Carson River downstream of the Fort Churchill to Comstock Meadows #2 transmission line.



**Legend**

- Proposed Action Transmission Line
- Scotty's Jct. Transmission Alternative 'A'
- Scotty's Jct. Transmission Alternative 'B'
- Bureau of Land Management
- Department of Energy
- Department of Defense
- Indian Reservation
- Private

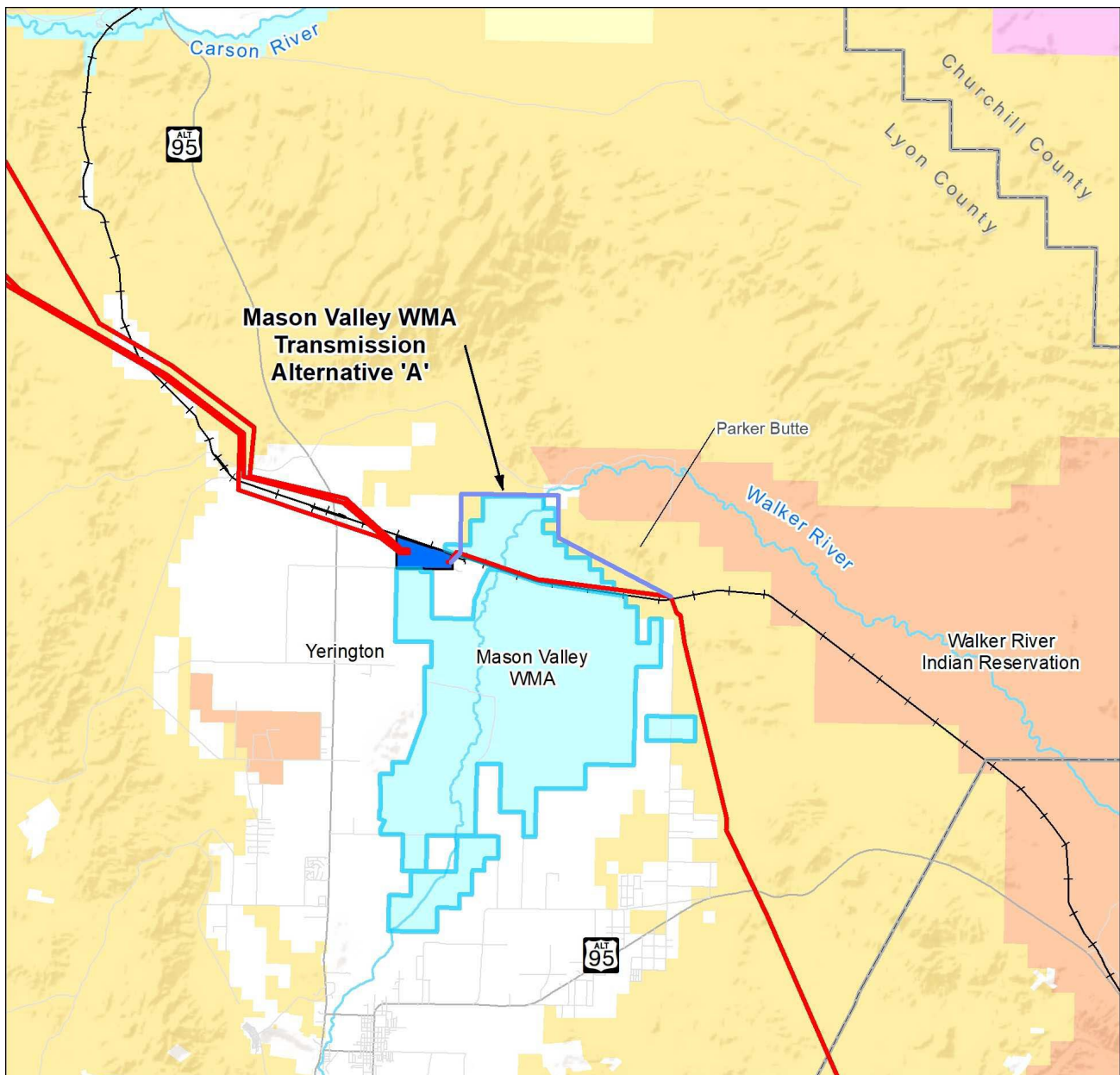


Scale: 1:125,000



No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure EX-5. Scotty's Junction Transmission Line Route Group Alternatives**



**Legend**

- Proposed Action Transmission Line
- Mason Valley WMA Transmission Alternative 'A'
- Proposed Fort Churchill Substation
- Bureau of Land Management
- Bureau of Reclamation
- Department of Defense
- Indian Reservation
- State
- Private
- Mason Valley Wildlife Management Area (WMA)

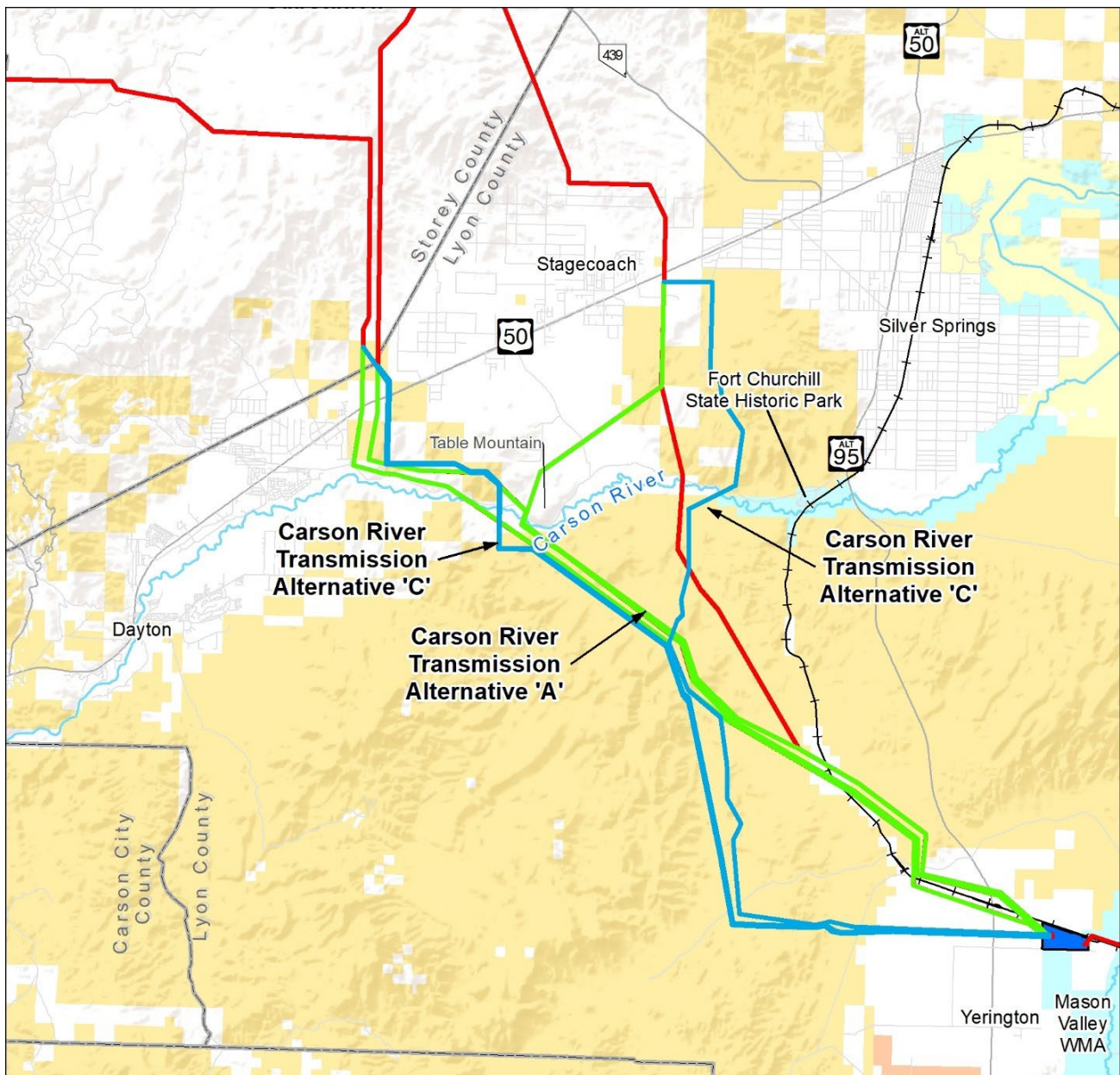


Scale: 1:300,000



No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure EX-6. Mason Valley WMA Transmission Line Route Group Alternatives**



**Legend**

- Proposed Action Transmission Line
- Carson River Transmission Alternative 'A'
- Carson River Transmission Alternative 'C'
- Proposed Fort Churchill Substation
- Bureau of Land Management
- Bureau of Reclamation
- State
- Private
- Indian Reservation



Scale: 1:275,000



No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure EX-7. Carson River Transmission Line Route Group Alternatives**

## **7. Substation Group Alternatives**

The Esmeralda Substation (ES) Group Alternatives consider three different locations over a range of approximately 30 miles for an approximately 109-acre substation (Figure EX-8). The ES-1 substation would be located approximately 8.4 miles south of Mina in Mineral County. The ES-2 (Proposed Action) would be approximately 4.4 miles southeast of the US 95/US 6 junction in Esmeralda County, adjacent to SR 265, and along the east side of the transmission line alignment. The ES-3 would be approximately 10.3 miles southeast of the US 95/US 6 junction in Esmeralda County, along the west side of the transmission line alignment.

The Amargosa Substation (AS) Group Alternatives consider different locations for an approximately 109-acre substation over a range of approximately 6.7 miles in Nye County. The AS-1 substation location would be approximately 12.2 miles west of the US 95/SR 373 junction. The AS-2 (Proposed Action) would be approximately 6.1 miles west of the US 95/SR 373 junction, along the south side of the transmission line alignment.

## **8. Microwave Facility Alternatives**

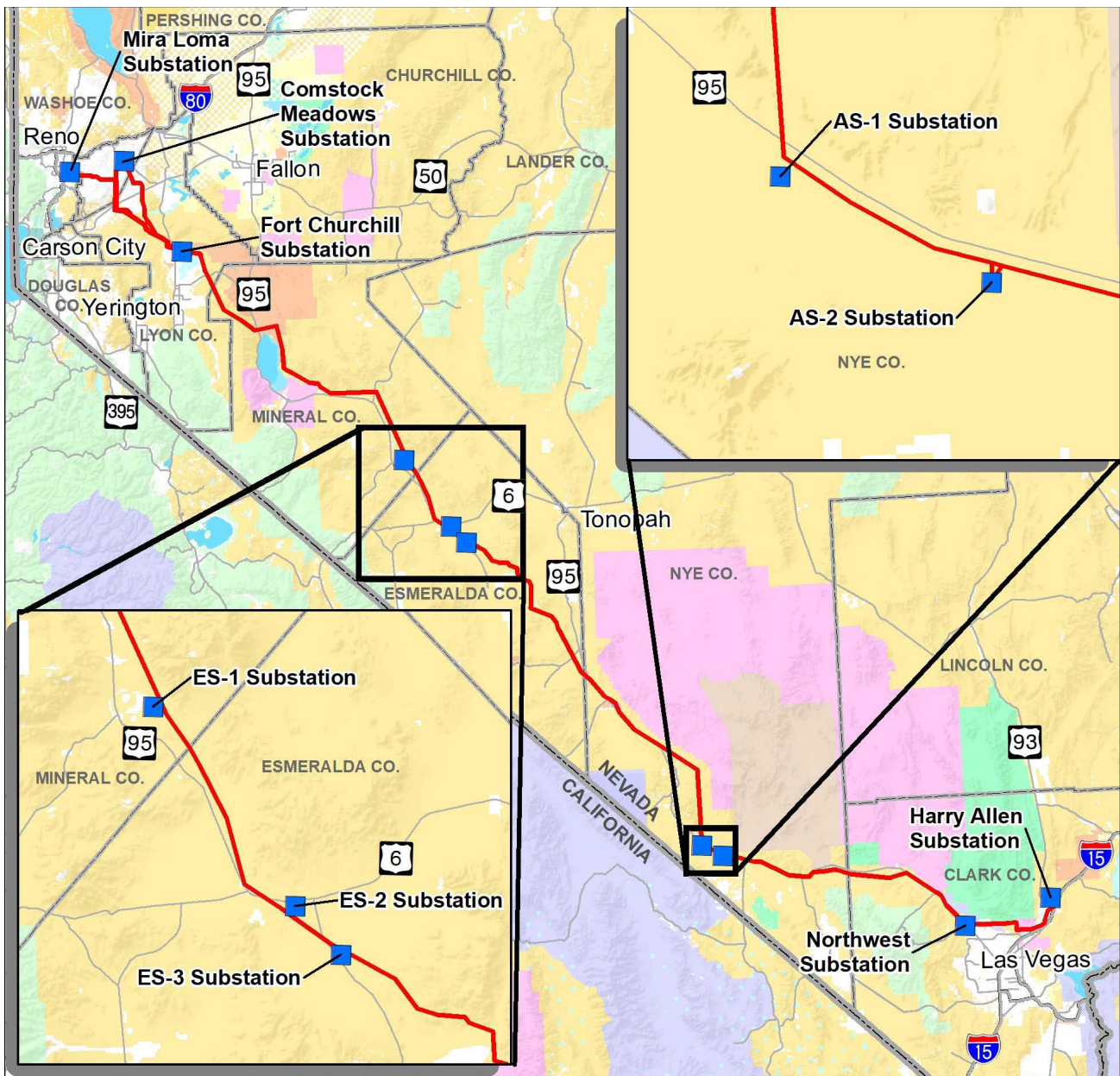
The Amargosa Microwave (AM) Site Alternatives would consist of two different locations for a new two-acre microwave facility (Figure EX-9). Both microwave alternatives would be located along SR 373 in Nye County, approximately 0.5 miles north of the Nevada-California state line. The AM-1 would be located on private lands approximately 700 feet southeast of AM-2 on the east side of SR 373. The AM-2 (Proposed Action) would be located west of SR 373 on BLM-administered lands.

## **VIII. NO ACTION ALTERNATIVE**


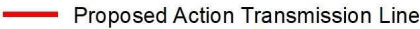










Under the No Action Alternative, the federal ROW agencies would not grant a ROW for construction, O&M, and decommissioning of the GLWP and the BLM would not amend the relevant RMPs. The GLWP facilities would not be built and existing land uses and present activities in the GLWP area would continue. The land on which the GLWP would be located would be available to other uses that are consistent with the applicable land use plans.

## **IX. FEDERAL LEAD AGENCY PREFERRED ALTERNATIVE**

Under NEPA, the “preferred alternative” is a preliminary indication of the lead agency’s preference of action among the No Action and Action Alternatives. The lead agency selects a preferred alternative for a variety of reasons including its priorities and environmental considerations discussed in an EIS. In accordance with NEPA (40 CFR 1502.14(d) and 43 CFR 1610.4-7), the BLM has identified its Preferred Alternative to be the Proposed Action as modified with the inclusion of specific transmission line and substation alternatives (Table EX-3). The BLM Preferred Alternative is illustrated in Figure EX-10.

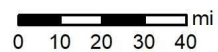


**Legend**

- |   |   |
|---|---|
|  Substation                        |  US Forest Service     |
|  Proposed Action Transmission Line |  Indian Reservation    |
|  Bureau of Land Management         |  National Park Service |
|  Department of Energy              |  State                 |
|  Bureau of Reclamation             |  Private               |
|  Department of Defense             |  Water                 |
|  US Fish and Wildlife Service      |   |

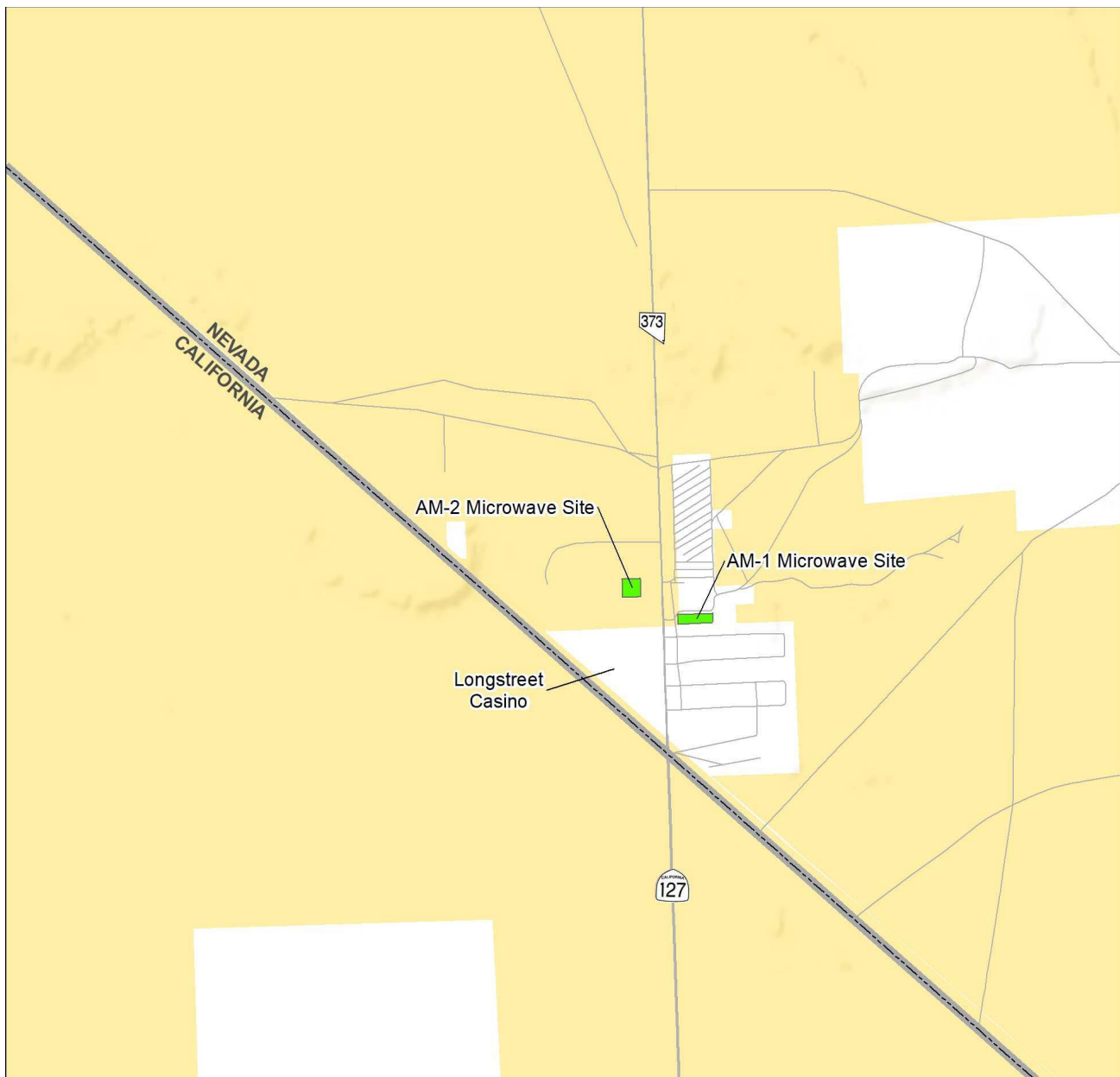


Scale: 1:3,000,000



No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure EX-8. Substation Group Alternatives**



**Legend**

- Microwave Site
- Bureau of Land Management
- Private



Scale: 1:36,000



No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure EX-9. Microwave Facility Alternatives**



**Table EX-3. BLM Preferred Alternative**

<b>Action Alternative</b>
Beatty Transmission Alternative L
Scotty's Junction Transmission Alternative A
Mason Valley WMA Transmission Alternative A
Carson River Transmission Alternative C
Amargosa Substation –1

*Table Acronym(s):* BLM – Bureau of Land Management; WMA – Wildlife Management Area

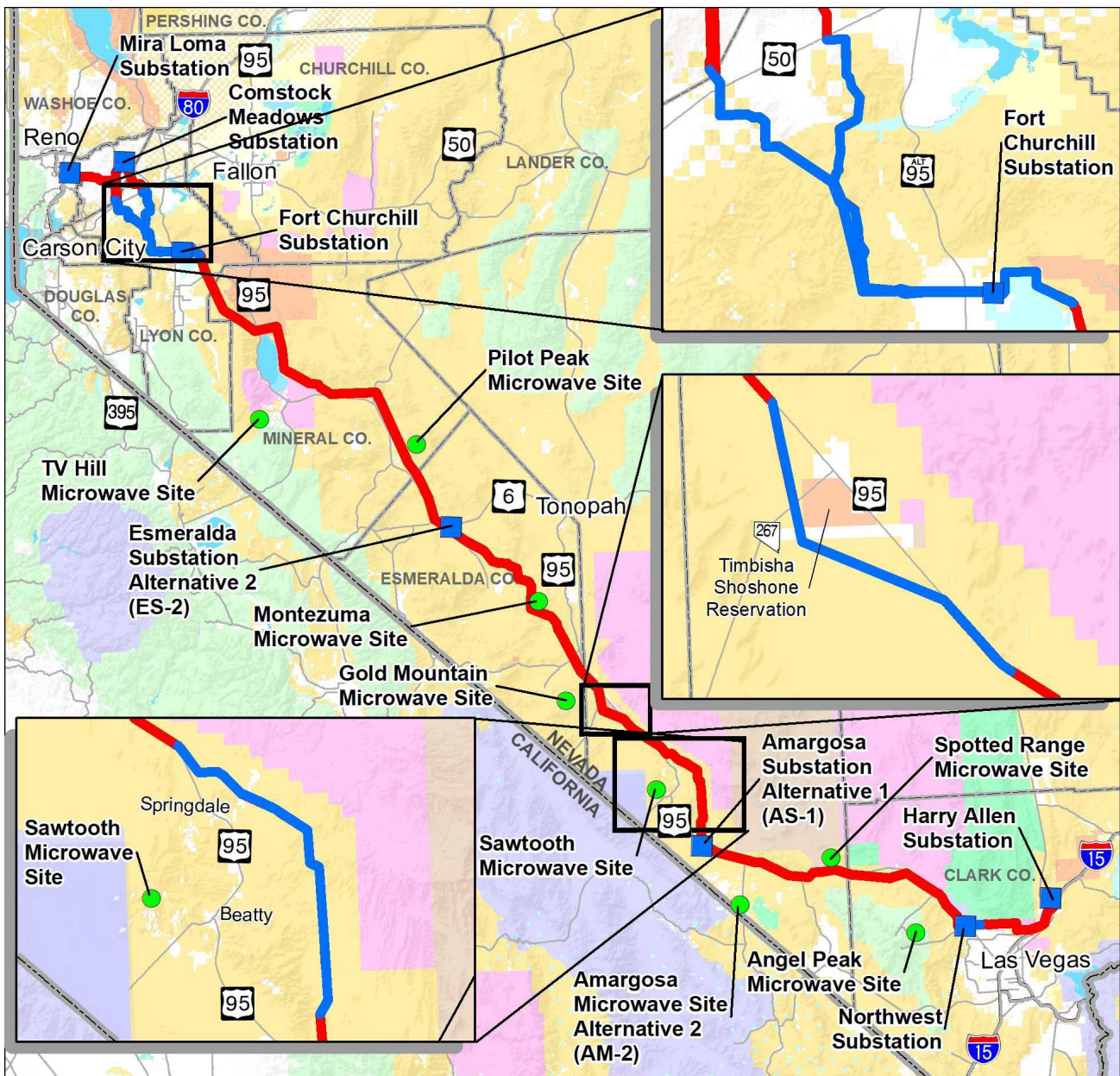
## **X. SUMMARY OF ENVIRONMENTAL CONSEQUENCES**

A summary of the environmental consequences on the substantive resources/uses from the BLM Preferred Alternative is provided below. These resources/uses include federally listed species, special status species, cultural, Native American religious concerns, paleontological, National Historic Trails, land use, socioeconomic and environmental justice (EJ), special designation areas, and visual. To avoid, minimize, or reduce impacts to resources from the GLWP, relevant Best Management Practices (BMPs), Standard Operating Procedures (SOPs), Interagency Operating Procedures, conservation and prevention measures, and applicable requirements from the BLM's applicable RMPs and manuals are considered in the impact analysis for each resource/use. Laws and policy specific to the federal ROW agencies would be applied for any activities proposed on the respective federal agency's administered lands or lands overseen by the federal ROW agency (e.g., policy specific to NPS for TUSK). The term Environmental Management Measures (EMMs) refers collectively to the EPMs, BMPs, and SOPs and these EMMs are listed in Appendix C. Any mitigation measures identified in the Final EIS/Proposed RMPA are in addition to the EMMs.

### **A. Federally Listed Species**

The BLM Preferred Alternative may impact federally listed wildlife species including the Lahontan cutthroat trout, Mojave desert tortoise, Mount Charleston blue butterfly, southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail. Wildlife species that are proposed for federal listing under the ESA that may be impacted by the BLM Preferred Alternative include the Bi-State Distinct Population Segment of the greater sage-grouse (Bi-State sage-grouse) and the northwestern pond turtle.

The construction of the BLM Preferred Alternative may impact these federally listed and proposed species through habitat removal, increased noise and human presence, nighttime lighting, deposition of dust, sedimentation, the introduction and spread of invasive plant species and noxious weeds and crushing by or collisions with vehicles and personnel. These construction-related activities would result in increases in local anthropogenic disturbance, which may result in physiological and behavioral changes, including avoidance of affected areas, throughout the construction phase. These species would also be susceptible to injury or death from collisions with construction vehicles.



**Legend**

- Microwave Site
- Substation
- Proposed Action Incorporated as Part of the BLM Preferred Alternative
- Specific Transmission Line Alternative Incorporated as Part of the BLM Preferred Alternative
- Bureau of Land Management
- Department of Energy
- Bureau of Reclamation
- Department of Defense
- US Fish and Wildlife Service
- US Forest Service
- Indian Reservation
- National Park Service
- State
- Private
- Water



Scale: 1:3,000,000  
 0 10 20 30 40 mi

No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure EX-10. BLM Preferred Alternative**

Ongoing O&M activities associated with the BLM Preferred Alternative would include impacts on federally listed and proposed species from predators perching and nesting on transmission towers and lines, habitat degradation from vegetation management, and electromagnetic field (EMF) from overhead electrical transmission lines. The addition of transmission line structures to the landscape may increase the population of predatory birds by creating nesting and foraging opportunities for species that hunt from perches. Some federally listed and proposed species may experience increased mortality due to avian predators nesting on or using transmission line structures to forage. During O&M, these species may continue to stay away from the BLM Preferred Alternative permanent ROW area, which could reduce connectivity.

Impacts during decommissioning would be similar to those described for construction, though to a lesser degree. After reclamation of disturbed areas, vegetation would be restored to pre-construction conditions, to the extent feasible. The impacts on federally listed and proposed species such as those associated with vegetation maintenance, increased noise and human presence, and habitat degradation from vegetation management would no longer occur after the removal of the BLM Preferred Alternative components.

As part of the BLM Preferred Alternative, EMMs would be implemented to avoid/minimize impacts on federally listed and proposed species prior to and during construction activities (Appendix C). These EMMs include measures to minimize nighttime lighting, establish seasonal restrictions on construction-related activities, limit staging and construction area near rivers and wetlands, and apply stormwater management measures. Additionally, a specific Raven Management Plan (Appendix G) and Bird and Bat Conservation Strategy (BBCS) (Appendix H) were developed for the BLM Preferred Alternative.

The following impacts to federally listed and proposed species may occur with construction, O&M, and decommissioning of the BLM Preferred Alternative:

#### **1. Lahontan Cutthroat Trout and Northwestern Pond Turtle**

Construction of the BLM Preferred Alternative would not result in impacts to Lahontan cutthroat trout and northwestern pond turtle because no occupied habitats occur within the temporary ROW area and there would be no construction activities directly within the two species' suitable habitats. Construction of the BLM Preferred Alternative would result in indirect impacts to potential Lahontan cutthroat trout and northwestern pond turtle habitat due to vegetation removal, sedimentation, and stormwater runoff into the Carson and Walker rivers. Vegetation removal within the transmission line ROW and where existing access roads require improvements along the Walker and Carson rivers could impact both species by reducing canopy cover along the waterways and impacting water temperatures and food availability (e.g., terrestrial, aquatic invertebrates). Vegetation removal along the Carson River could impact suitable nesting habitat for the northwestern pond turtle. Riparian vegetation removed or trimmed to ensure adequate separation from the transmission line removal for both the Carson and Walker rivers would be minimized to the extent feasible.

Impacts on Lahontan cutthroat trout and the northwestern pond turtle from ongoing O&M of the BLM Preferred Alternative are not anticipated because, similar to construction, there would be no O&M activities occurring directly within the two species' occupied or suitable habitat. The eventual growth of compatible vegetation in treated areas would moderate water temperatures, buffer the input of sediment and herbicides from runoff, and promote riverbank. Additional impacts to the two species from O&M activities would be similar to those from construction due to habitat degradation as a result of vegetation maintenance and sedimentation into the rivers from inspection and maintenance of the transmission facilities. These impacts would be minimized through implementation of EMMs.

## 2. Mojave Desert Tortoise

Mojave desert tortoise habitat would be disturbed within the temporary and permanent ROW areas by the actual footprint of the BLM Preferred Alternative components. Construction of the BLM Preferred Alternative would result in disturbance within the temporary ROW area, a portion of which would be restored after construction. Construction areas would account for the majority disturbance within the temporary ROW area; construction yards would account for approximately half of the disturbance where vegetation would be driven over, crushed, cut to ground level, and/or removed. Reclamation measures would reduce habitat loss and degradation from the BLM Preferred Alternative disturbance, improve availability of perennial plants as cover sites and forage plants. Construction-related impacts to Mojave desert tortoises would include direct mortality or injury as a result of being crushed by vehicles traveling on access roads or from disturbance to burrows during construction activities. The addition of new roads and increased use of existing roads during construction would result in an increase in direct mortality or injury to Mojave desert tortoises from being crushed by vehicles.

During construction, relocating Mojave desert tortoises out of construction areas may result in harassment and possibly injury or death; implementation of the EMMs and USFWS handling and relocation procedures would minimize these impacts. The construction-related effects would also be minimized by implementation of the Raven Management Plan, which would require trash and litter control, reducing potential for predator-related effects on Mojave desert tortoises.

The portions of the BLM Preferred Alternative along US 95 between Indian Springs and Amargosa would be in an area with current connectivity constraints. The priority connectivity areas represent priority habitat linkages between and among Mojave desert tortoise conservation areas and habitat with important value for Mojave desert tortoise recovery. Portion of the BLM Preferred Alternative would be within Mojave desert tortoise Priority I and II connectivity areas as established by the 2012 Western Solar Plan. The BLM Preferred Alternative would contribute to existing habitat connectivity effects in the area along US 95.

The additional miles of roads and increased use of existing roads during O&M and by the public would increase direct mortality or injury to Mojave desert tortoises as a result of being crushed by vehicles. These impacts would be minimized through implementation of EMMs, which would restrict unauthorized access to GLWP access roads, require project personnel to check around vehicles and equipment for Mojave desert tortoises before moving the vehicles, and limit project vehicle speeds on unpaved access roads to 15 miles per hour (mph) during the Mojave desert tortoise most active season and 25 mph during the least active season.

Impacts during decommissioning would be similar to impacts during construction, though to a lesser degree. After reclamation of disturbed areas, vegetation would be restored to pre-construction conditions and habitat for Mojave desert tortoise would be reestablished, to the extent feasible. Prior to decommissioning, the Proponent's Habitat Reclamation Plan would be reviewed and revised in coordination with the USFWS and applicable land management agencies to confirm any new research or best available data is incorporated, as practical.

The BLM has identified a measure to mitigate impacts on Mojave desert tortoise associated with the potential increase in raven predation due to introduction of transmission structures within Mojave desert tortoise habitat. This measure is referred to as the anti-perching/nesting mitigation measure and is intended to discourage raven perching and nesting on transmission and distribution structures. All transmission line structures for the BLM Preferred Alternative located in Mojave desert tortoise recovery

units would be designed and constructed using tubular transmission structures (i.e., tubular H-frame, three-pole dead-end, or monopole structures) with pointed tops rather than lattice tower designs. Perch and nest deterrents would be installed on all transmission and distribution structures within Mojave desert tortoise recovery units.

To offset residual impacts to Mojave desert tortoises, the BLM would collect remuneration fees from the Proponent for the BLM Preferred Alternative total disturbance within Mojave desert tortoise habitat. Remuneration fees would provide funding for Mojave desert tortoise mitigation and would be outlined in the terms and conditions of the Biological Opinion and incorporated into the ROD. Remuneration fees would be used for actions expected to promote management and recovery of the Mojave desert tortoise over time. Actions may involve habitat acquisition, population or habitat enhancement, increasing knowledge of the species' biological requirements, reducing loss of individual animals, documenting the species status and trend, and preserving distinct population attributes.

### **3. Mount Charleston Blue Butterfly**

Construction, O&M, and decommissioning activities associated with the BLM Preferred Alternative would have no impacts to the Mount Charleston blue butterfly because no occupied habitat occurs within the temporary and permanent ROW areas. The BLM Preferred Alternative would have no impacts to designated critical habitat for the Mount Charleston blue butterfly. Suitable host and nectar plants used by the Mount Charleston blue butterfly may occur just outside the existing Angel Peak microwave site, but would not be directly or indirectly impacted by the construction activities associated with the site's expansion. Habitat degradation from sedimentation to neighboring suitable habitat would be negligible as vehicle travel would occur on existing roadways. The Proponent's Integrated Weed Management Plan would provide measures to reduce the potential for the introduction of invasive species to adjacent habitat containing suitable host and nectar plants.

### **4. Southwestern Willow Flycatcher, Yellow-billed Cuckoo, and Yuma Ridgway's Rail**

The BLM Preferred Alternative would occur outside the range for the southwestern willow flycatcher and Yuma Ridgway's rail. The Carson River contains marginal suitable breeding habitat for the yellow-billed cuckoo. The potential for breeding habitat would be low because riparian vegetation along the Carson River at the crossing of the BLM Preferred Alternative is sparse and limited populations of the species occur in the region.

Direct impacts on breeding yellow-billed cuckoos would be avoided with the implementation of breeding season timing restrictions at the Carson River. Southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail could migrate or disperse along the Carson River and potentially collide with transmission line wires. As a result of the BCS and the EMMs, which include the Avian Power Line Interaction Committee Collision-suggested practices, potential impacts from bird collisions during migration and dispersal along the Carson River would be reduced during the construction, O&M, and decommissioning of the BLM Preferred Alternative.

### **5. Bi-State Sage-grouse**

The BLM Preferred Alternative would cross three Bi-State sage-grouse Population Management Units (PMUs): the Pine Nut, Mount Grant, and White Mountains PMUs. The BLM Preferred Alternative would not occur within Bi-State sage-grouse habitat but temporary ROW and a pull site would be within Bi-State sage-grouse proposed critical habitat. Temporary and permanent impacts to proposed critical habitat would occur from the construction activities associated with the improvement of existing access roads, TV Hill microwave site distribution line, and a pull site. To minimize impacts on proposed critical habitat, EMMs would be

implemented requiring all construction-related activities occur outside of the proposed critical habitat boundary. Implementation of EMMs would require access road upgrades to be limited to the area necessary to accommodate construction activity, minimizing impacts from access road improvements.

Portions of the BLM Preferred Alternative would collocate with existing transmission lines within the Pine Nut and Mount Grant PMUs. Impacts to Bi-State sage-grouse in areas where the BLM Preferred Alternative would be collocated with existing transmission lines may be less than areas where the transmission lines are not collocated because similar impacts are already present along the existing transmission infrastructure. Bi-State sage-grouse may already avoid the area around the existing transmission lines and the addition of the BLM Preferred Alternative adjacent to the existing transmission lines may increase the size of the existing area of avoidance. This additional area of avoidance would be less than if the BLM Preferred Alternative was not collocated.

The Proponent, the BLM, and Cooperating Agencies have incorporated current and adaptive management techniques for implementation in the Raven Management Plan. Compared to lattice-type structures, it is anticipated that tubular tower structures would provide reduced perching and nesting opportunities for ravens and raptors based on the reduced surface area available for perching.

Similar to the Mojave desert tortoise impacts from potential increase in raven predation, the anti-perching/nesting mitigation is also intended to reduce impacts on Bi-State sage-grouse. This mitigation measure would be implemented in the Pine Nut PMU and within two miles of designated Priority Areas for Conservation (PACs) in the Mount Grant PMU. Perch and nesting deterrents would be installed on all transmission towers and distribution poles within two miles of PACs and within six miles of leks. Implementation of the anti-perching/nesting mitigation measures would require approximately 25 percent more structures within Bi-State sage-grouse habitat.

The BLM has coordinated with the USFWS and Nevada Department of Wildlife (NDOW) on the impacts of the BLM Preferred Alternative to the Bi-State sage-grouse to develop a framework for compensatory mitigation to offset residual effects. Compensatory mitigation ratios for permanent disturbances within Bi-State sage-grouse habitat include 2:1 for acres of permanent disturbance associated with upgrading existing access roads for the proposed transmission line and distribution lines. The compensatory mitigation ratio associated with the proposed transmission line in areas of collocation is also 2:1. The ratio for permanent disturbance associated with areas of new transmission line not collocated with existing lines is 4:1.

## **6. Federally Listed Plant Species**

There are seven plant species that may occur within or adjacent to the BLM Preferred Alternative temporary ROW area: the Amargosa niterwort, Ash Meadows gumplant, Ash Meadows blazingstar, Ash Meadows ivesia, Ash Meadows milkvetch, Ash Meadows sunray, and spring-loving centaury (collectively referred to as the Ash Meadows plant species). There would be no impact to Amargosa niterwort and Ash Meadows gumplant because no suitable habitat is present within the BLM Preferred Alternative temporary ROW area.

Construction of the BLM Preferred Alternative would temporarily disturb suitable habitat for Ash Meadows blazingstar, Ash Meadows ivesia, Ash Meadows milkvetch, Ash Meadows sunray, and spring-loving centaury. Indirect impacts would occur to suitable habitat within and adjacent to the temporary and permanent ROW areas due to increases in fugitive dust and sedimentation and introduction of invasive plant species. To reduce these habitat impacts, the Proponent would implement EMMs to avoid construction activities within 300 feet from the ordinary high water mark of perennial, intermittent, and

ephemeral drainages and from marshes, playas, and other wetlands including springs, as feasible. If plants cannot be avoided, the Proponent would coordinate with the USFWS, BLM, and appropriate land management agencies to determine if salvaging individuals or their seeds is feasible prior to removing individuals from the site. Additionally, the Proponent would implement an Integrated Weed Management Plan and EMMs to minimize impacts from erosion, sedimentation, and spread of invasive plant species and noxious weeds. Following the construction of the BLM Preferred Alternative, the Proponent would implement a Habitat Reclamation Plan to restore the temporary disturbance areas to pre-construction conditions, to the extent feasible. Salvaged topsoil would be used to preserve the original soil conditions, mimic natural drainage patterns through contouring, and reseed disturbed areas with a native seed mix approved by the appropriate federal ROW agency.

During O&M, impacts from ground-disturbing activities and vegetation management of the BLM Preferred Alternative would occur less frequently and in isolated areas compared to during construction. After reclamation of disturbed areas, vegetation would be restored to pre-construction conditions and habitat for the Ash Meadows plant species would be reestablished, to the extent feasible. Impacts during decommissioning would be similar to those during construction, though to a lesser degree.

## **B. Special Status Species**

Special status species refer to species protected under applicable laws and regulations and species of concern to land management agencies within the GLWP area and include agency-specific sensitive species, candidate species for listing under the ESA, migratory birds, and species protected under Nevada state regulations. Appendix I provides a full list of the special status species that were evaluated and identifies which species have the potential to occur within the GLWP area. Approximately 183 special status plant and wildlife species have the potential to occur within or adjacent to the temporary ROW area of the BLM Preferred Alternative, and these species may be impacted.

Impacts on special status plant species would include habitat loss, direct removal of individual plants, and habitat degradation from the introduction and spread of noxious weeds and invasive plant species and increase in fugitive dust and sedimentation. The BLM Preferred Alternative would avoid occupied habitat for the Churchill Narrows buckwheat, a BLM sensitive plant.

The BLM has identified a measure to mitigate impacts on the Churchill Narrows buckwheat which includes an avoidance buffer for the BLM Preferred Alternative. This avoidance buffer would include, but is not limited to, construction of GLWP components and access roads and vehicular or pedestrian access. Where feasible, GLWP components would be moved to maintain a 1,640-foot avoidance buffer from occupied and/or suitable habitat for Churchill Narrows buckwheat.

Impacts on special status wildlife species (including terrestrial wildlife, aquatic wildlife, birds, and bats) from the BLM Preferred Alternative would include habitat loss and degradation, mortality and injury, collision with or crushing from vehicles, and disturbance from noise and human presence. Impacts on birds and bats may also include collision with transmission and distribution power line conductors and guy wires and electrocution from distribution lines. Five of the special status terrestrial wildlife species are only known to occur at two locations: Big Dune and Lava Dune in the Amargosa Valley. The BLM Preferred Alternative AS-1 substation would be located approximately 5.2 miles west of Lava Dune and is not anticipated to alter the sand's natural transport and deposition to the dune. Impacts to Amargosa miloderes weevil, Amargosa Valley darkling beetle, Ash Meadows dune scorpion, Giuliani's dune scarab, and Large aegialian scarab would not occur under the BLM Preferred Alternative.

### **C. Cultural Resources**

The BLM Preferred Alternative is anticipated to result in direct and indirect effects to cultural resources, some of which may include adverse effects to historic properties. These cultural resources could include prehistoric or historic archaeological sites, districts, buildings, historic trails, and roads. In some cases, the setting of a historic property could be affected by the BLM Preferred Alternative. Direct impacts to cultural resources would be minimized or potentially eliminated through design and micro-siting, such as spanning sensitive cultural resource sites or features. Where NRHP-eligible properties are within the Direct Area of Potential Effects, an archaeologist would monitor construction activities to ensure that construction crews stay on approved roads, surface artifacts and features would not be disturbed, and work would stop in the event of an unanticipated discovery. In some instances, monitoring construction activities may be all that is needed to avoid or minimize adverse effects to sites. Additionally, the Proponent has agreed to avoid as many unevaluated resources through design and micro-siting as practicable.

Adverse effects to NRHP-eligible cultural resources resulting from construction of the BLM Preferred Alternative would be mitigated according to the procedures outlined in the HPTP (Appendix K). Measures to avoid, minimize, or mitigate effects are determined on a site-by-site basis and may include a combination of avoidance, monitoring, or mitigation. The BLM would commit to treatment measures in the ROD consistent with 36 CFR 800.8(c)(4); no separate agreement documents (i.e., memorandum of agreement or programmatic agreement) would be required.

### **D. Native American Religious Concerns**

The BLM has invited Native American Tribes to public workshops, facilitated government-to-government consultation, coordinated GLWP meetings with Native American Tribes, and presented GLWP updates to Tribal Councils. The BLM has also engaged with Native American Tribes through the Section 106 process, including consultation, Tribal monitors during fieldwork, and archaeological site visits with Tribal representatives. Concerns included potential impacts to the Salt Song Trail in southern Nevada, modern prayer locations along US 95 in Nye and Esmeralda counties, archaeological sites with rock features and rock writing, impacts to Mojave desert tortoise, and impacts at TUSK.

The BLM Preferred Alternative may result in changes to views including visual obstruction, illegal artifact collection, vandalism, looting, increased traffic and traffic noise, and increased trash at new roads or pull-outs. The BLM Preferred Alternative would not alter or restrict access to Tribal sacred sites. Because there is no physical evidence of the Salt Song Trail, it is difficult to identify direct or indirect impacts from the BLM Preferred Alternative or any tangible measures to avoid or minimize impacts to the Salt Song Trail. The BLM will continue to consult with Southern Paiute Tribes, who hold the Salt Song Trail sacred, to identify and address potential effects through government-to-government consultation. This will allow the BLM to further understand potential impacts from the BLM Preferred Alternative and identify ways to avoid or minimize impacts. Government-to-government consultation between the BLM and federally recognized Native American Tribes is ongoing.

### **E. Paleontological Resources**

The BLM Preferred Alternative would be underlain predominantly by geologic units with very low or low paleontological potential, while a small portion would be underlain by geologic units that range in paleontological potential from moderate to very high. The areas of very high paleontological potential only occur in the Las Vegas Formation around the TUSK. The damage or destruction of paleontological resources by the BLM Preferred Alternative during construction activities could occur. Additionally, the



discovery, successful documentation, and salvage of fossils that meet significance criteria as paleontological resources would become part of the scientific record and disseminate scientific information among the general public and/or scientific community.

Implementation of EMMs and the Paleontological Resources Mitigation Plan (Appendix L) developed for the GLWP would avoid and/or minimize impacts from the BLM Preferred Alternative. The Paleontological Resources Mitigation Plan includes that, prior to construction, additional ground-penetrating radar studies be conducted in the BLM Preferred Alternative permanent ROW area within TUSK and the resulting data used to develop treatment plans for any anomalies identified that may represent fossils.

## **F. Special Designation Areas**

The BLM Preferred Alternative would have direct ground disturbance, temporary increases in ambient noise levels, and dust in areas where it would intersect Special Designation Areas (SDAs). The BLM Preferred Alternative would directly cross TUSK; Mason Valley WMA; Big Dune, Las Vegas Valley, and Walker Lake Special Resource Management Areas (SRMAs); and Bullfrog-Beatty and Southern Nevada Extensive Recreation Management Area (ERMAs). Additionally, the BLM Preferred Alternative would run immediately adjacent to the boundary of Desert NWR, Red Rock Canyon National Conservation Area (NCA), and Fort Churchill State Historic Park.

Within the TUSK, the BLM Preferred Alternative would be within the Foundation Document-established 400-foot-wide ROW outlined in the TUSK enabling legislation and therefore would not alter, conflict with, or require new management prescriptions and objectives for this SDA. The BLM Preferred Alternative would impact approximately 3.5 acres during construction and require approximately 19.8 acres of permanent ROW. Approximately 0.2 miles of the BLM Preferred Alternative would cross the Mason Valley WMA and include one structure and a 200-foot permanent ROW (approximately 5.0 acres). This would create a short-term change in the WMA's primary use of the WMA but would generally conform with the WMA's managing agency policies.

During construction, the BLM Preferred Alternative would affect the experience of recreational users at the SDAs depending on the time of day, atmospheric conditions, viewing direction, and actual distance from the active construction area. Operations and maintenance activities during annual inspections utilizing helicopters, all-terrain vehicles, or line trucks within the BLM Preferred Alternative permanent ROW area could disturb wildlife and recreationists. Additionally, the presence of new and improved access roads within or adjacent to SDAs may increase the potential for unauthorized off-highway vehicle (OHV) use and illegal dumping. This would result in an increased chance for social (unauthorized) roads and user-created route proliferation.

Coyote Springs Area of Conservation Concern (ACEC), La Madre Mountain Wilderness Area, Mount Stirling Wilderness Study Area (WSA), Big Dune ACEC, Amargosa Mesquite ACEC, Timber Mountain Caldera ACEC, Grapevine Mountains WSA, Gabbs Valley Range WSA, and Steamboat Hot Springs Geyser Basin ACEC are greater than 0.5 miles from the BLM Preferred Alternative. An existing access road that requires improvement for the BLM Preferred Alternative is within 0.5 miles of the Black Mountain-Pistone NCA. The opportunity for solitude in WSAs and Wilderness Areas and habitat and resources conservation in the ACECs and NCAs would not be impacted in remote areas during construction of the BLM Preferred Alternative. While no direct effects would result from implementation of the BLM Preferred Alternative, views toward and from these SDAs may be affected depending on the proximity to the GLWP. The BLM Preferred Alternative would not alter, conflict with, require new management prescriptions and objectives, or otherwise physically or administratively affect the designations of these SDAs.

The BLM Preferred Alternative would intersect a total of 13 inventoried Lands with Wilderness Characteristics (LWC) Units. The BLM Preferred Alternative permanent ROW area would occupy approximately 1,794.4 acres and would result in the indirect loss of approximately 21,382.8 acres of inventoried LWC units for a total of approximately 23,180.2 acres (10,037.9 acres from the BLM Carson City District Office [CCDO] and 13,142.3 acres from the BLM's Tonopah Field Office [TFO]). The BLM Preferred Alternative would disqualify the existing inventoried LWC unit NV-030-210A and result in the loss of approximately five percent of inventoried wilderness characteristics within the TFO and CCDO.

## **G. National Historic Trails**

The California, Pony Express, and Old Spanish National Historic Trails (NHTs) and feasible and suitable portions of the Central Overland Emigrant Route are located within the GLWP area. The Central Overland Emigrant Route – Simpson Route #35E and Bidwell-Bartleson Route #39 were recommended for inclusion in the National Trails System and are awaiting congressional review.

The NHT segments with foreground (FG) views of the Action Alternatives would be impacted by the generation of fugitive dust; movement of equipment and vehicles in and out of the temporary ROW area; and the presence of construction vehicles and equipment, transmission line stringing, and material stockpiles during construction. These impacts would affect recreation settings, experiences, and activities during construction of the Action Alternatives. Construction activities that would modify the slope of the natural terrain, compact soils, and remove vegetation could cause increased erosion of NHT traces and archaeological deposits and modify the appearance of the existing landforms. Any unsurveyed, unevaluated trail traces within the temporary ROW area may also have the potential to be physically disturbed during construction.

During O&M, all access and maintenance roads would be maintained and publicly accessible, unless otherwise specified by the landowner or appropriate land management agency. New roads and improved existing roads in the immediate vicinity of NHT traces may contribute to unauthorized recreational travel and route proliferation. Looting of archaeological sites due to increased accessibility from access roads may occur during O&M. Annual inspections of the GLWP components would be conducted by helicopter, all-terrain vehicles, or line trucks. Depending on the existing conditions, setting, and distance from the NHT, these types of O&M activities may create intermittent noise, dust, and movement from vehicles and equipment which would impact the NHT landscape elements. The presence of the BLM Preferred Alternative components would reduce the historic integrity of less-developed settings. Impacts during decommissioning would be similar to those described for construction, though to a lesser degree. After reclamation, disturbed areas would be restored to pre-construction conditions, to the extent feasible.

The BLM Preferred Alternative would permanently change the desired NHT scenic, recreational, cultural and historic, and natural resources, qualities, values, and associated settings and therefore would be incompatible within the immediate FG of portions US 50 Carson Routes, the Carson River Route, the Walker River – Sonora Route, and the Pony Express NHT. The BLM Preferred Alternative is anticipated to result in effects, such as changing the physical setting of NHTs (e.g., visual effects). These effects would be most pronounced where the BLM Preferred Alternative would cross the Carson River and the Adrian Valley. The BLM Preferred Alternative would be incompatible with but not substantially interfere with the nature, purpose, and primary uses of the NHTs for the following reasons: 1) the Carson Route, Carson Route – Dry Route, and Carson Route – Wet Route along US 50 no longer possess greater than average scenic values or afford opportunities for vicarious experiences characteristic of a high potential route segment; 2) high visual contrasts would be limited to the immediate FG; and 3) two of the three Proposed Action 345-kV

transmission routes follow existing transmission line(s). Effects to the remaining California, Pony Express, and Old Spanish NHT segments would not rise to the level of incompatibility or substantial interference.

## **H. Land Use, Indian Trust Assets, Recreation, Military Installations and Airspace, and Mining and Mining Claims**

### **1. Land Use**

The BLM Preferred Alternative would predominantly cross federally administered lands, with smaller portions crossing the Reservations, state and local agency land, and privately owned land. Indian Trust Assets (ITAs) include reservations and Public Domain Allotments associated with the Walker River and Las Vegas Paiute Tribes and the Timbisha Shoshone Tribe. State land includes state recreational areas and parks, the Mason Valley WMA, and correctional and National Guard facilities.

Land uses such as residential, commercial, and recreational would be temporarily disrupted or displaced by noise, dust, and traffic as a result of activities associated with constructing new access roads, making improvements to existing access roads, or construction equipment moving materials throughout the temporary ROW area.

Existing land uses, such as grazing, are generally permitted within transmission line ROW corridors on BLM-administered lands. Compatible uses of the permanent ROW area on either federal or state lands would have to be approved by the applicable land management agency. The Proponent would consult with the landowner to obtain any easement area on private lands. Any future development within the utility corridor would be required to comply with appropriate utility corridor construction requirements and applicable coordination efforts.

During decommissioning, the project components would be removed and disturbed areas would be reclaimed. Decommissioning of the transmission line would cause similar levels of disturbance and disruption as construction, but to a lesser degree. New and improved access roads constructed by the Proponent could be maintained as permanent based on agreements with the applicable landowner/administrator.

Some of the segments of the BLM Preferred Alternative 525-kV transmission line would follow existing corridors established by the respective BLM District Office (DO) or Field Office (FO) and designated WWECs. Where the BLM Preferred Alternative would not be located within a designated WWEC, the WWEC would be adjusted to follow the GLWP alignment. Modifications to the WWEC resulting from the BLM Preferred Alternative would require RMP Amendments.

### **2. Indian Trust Assets**

By virtue of the use and encumbrance of the land, the BLM Preferred Alternative at the Snow Mountain and Walker River Reservations would impact ITAs. The BIA cannot grant a ROW or a lease without the Tribe's consent through a Tribal Resolution, which is an agreement from the Tribe for the use of the land. The ROW agreement would include a lease income to the Tribe for the use of the land throughout the life of the lease terms and generate revenue for the Tribe. The ROW agreement would not preclude the Tribe's land for grazing or other activities that do not conflict with the transmission line use, other than the specific transmission line structure locations. Any aggregate material proposed for extraction from either reservation would be considered an ITA, although no aggregate material is anticipated to be removed from reservation lands. The BLM Preferred Alternative would limit, but not eliminate, the use of lands within the permanent ROW area that would cross the Nellis AFB Small Arms Range, the Nevada National Guard Floyd

Edsall Training Center, TUSK, the Nevada prison complex, the Mason Valley WMA, and the Las Vegas Paiute Reservation - Snow Mountain and Walker River Indian Reservation.

### **3. Recreation**

Construction activities would not permanently restrict the use of or access to any existing recreation opportunities or activities. The construction of the BLM Preferred Alternative would temporarily alter the recreation settings and experiences in areas that do not already include existing, similar infrastructure. Any potential construction-related impacts on recreation opportunities, activities, and experiences would be localized, short-term, and cease once construction and decommissioning activities are complete. Some unauthorized OHV use could occur during construction when workers are not present (such as on weekends or in between construction phases).

The BLM Preferred Alternative access and maintenance roads would also provide increased access for recreational opportunities; could alter the OHV use patterns in the area; and would be subject to federal, state, Tribal, and local OHV and traffic laws and regulations. The construction of new and improved access roads may increase the potential for unauthorized OHV use and illegal dumping. This would result in an increased chance for social (unauthorized) roads and user-created route proliferation. An increase in social (unauthorized) roads and user-created trails would conflict with federal land management agencies' OHV-use strategies, create management challenges, and potentially increase user conflicts. Any illegal and/or unauthorized use of access roads would be enforceable by federal law enforcement officers, or other federal, Tribal, state, and local jurisdiction law enforcement (e.g., county, state). Activities associated with O&M would not impact on the use of the existing OHV routes.

### **4. Military Installations and Airspace**

The construction of the transmission towers would impact the use of military restricted airspace and planned military training operations except where it would be adjacent to existing transmission lines. Depending on the base operating elevation, the tower structures and lines would create obstructions to low-flying military operations on the western boundary of the Nellis AFB Small Arms Range. The obstructions to low-flying military operations would begin during construction activities and persist through O&M until decommissioning occurs and the structures are removed.

The BLM Preferred Alternative would cross the NTTR Range 77A restricted airspace and would conflict with the military training routes and airspace restrictions that include both visual and instrument routes for the NTTR. One of the training routes has a ground-level base operating elevation, therefore the transmission tower structures would obstruct the military airspace. The potential training route obstructions created by the tower structures would create impacts on military operations that are not mitigatable. The Proponent would coordinate with the NTTR and obtain any necessary authorizations and approvals prior to entering restricted airspace. Following decommissioning, the transmission line structures would be removed and no further impacts on military operations in Range 77A restricted airspace or the proposed legislative lands transfer from the obstructions caused by the transmission structures would occur.

### **5. Mining and Mining Claims**

The BLM Preferred Alternative would cross unpatented mining claims within the temporary and permanent ROW areas but would not cross any known patented mining claims. Because the final GLWP route would be sited to avoid impacts to active mining operations, construction activities would not cause direct impacts to operating mines.

Mineral resources may exist directly underneath the permanent ROW and some types of resources would not be practically accessible for the life of GLWP. The types of mineral resources that would be more affected than others would be near-surface mineral material deposits (e.g., common sand, gravel, stone). Appropriate siting and avoidance of mineral producing sites would reduce impacts associated with access to, and extraction of, mineral resources. While mineral resource conflicts may arise in association with the BLM Preferred Alternative, these conflicts would be minimized through negotiations between the Proponent and the claimant with valid existing rights.

The BLM Preferred Alternative is not anticipated to materially interfere with prospecting or mining operations because the GLWP is not expected to preclude or restrict access to minerals resources or prevent the development of mineral resources during O&M. The linear nature of the GLWP and the flexibility in the structure locations would minimize any potential restriction of access or development of mineral resources. Indirect effects could occur to mineral industry facilities (such as pipelines and wells) located adjacent to or within the permanent ROW due to EMF. Effects from EMF would be dealt with through the identification and delineation of existing underground metallic pipelines or well casings in the vicinity of the GLWP.

### **I. Socioeconomic Resources and Environmental Justice Populations**

Construction of the BLM Preferred Alternative would generate economic activity in the form of GLWP-related expenditures on materials and supplies. Construction activity would generate approximately 570 full-time equivalent jobs, more than \$165.3 million in labor income, and approximately \$461.5 million in total economic output for Nevada over the construction period. Construction benefits would be temporary and generally occur within the anticipated three-year construction timeframe. The BLM Preferred Alternative would also employ construction workers who may spend much of their income within surrounding communities and increase output in the sectors that provide consumer goods and services. Local construction expenditures for materials and supplies and spending by workers directly employed by the GLWP would benefit local economies. Construction would also generate state and local tax revenues.

The BLM Preferred Alternative would cross block groups where EJ populations were identified and no disproportionate impacts to minority and/or low-income populations would occur. The BLM Preferred Alternative would not permanently disrupt community cohesion or neighborhood continuity; permanently impact access to any community facilities; or isolate, exclude, or separate minority or low-income individuals from the broader community. Existing access to schools, public facilities, medical centers, and local public parks would be maintained throughout the life of the GLWP.

### **J. Visual Resources**

The majority of the BLM Preferred Alternative would have negligible effects to the landscape character (i.e., changes would be subtle and would not attract attention of the casual observer) or would be a change that would begin to attract attention in the landscape character. The BLM Preferred Alternative would be visually prominent and change the characteristic landscape in relatively flat to gently rolling landscapes with low vegetation generally located north of Las Vegas, south of the US 95-SR 360 junction, and south of the Carson River. The BLM Preferred Alternative components, specifically the tower structures and substations, would begin to attract attention and dominate the visual setting due to the lack of existing built features (meaning landscapes that are primarily undeveloped) or due to the level of contrast with existing built features and the scale of the GLWP in the setting.

The BLM Preferred Alternative permanent ROW area would occur on predominantly Class C Scenery landscapes. The GLWP components would be considered a built feature and the degree of change in scenic quality would range from no impact to being visually discernible to dominating the landscape and detracting from the existing scenic quality. The BLM Preferred Alternative would lower the scenic quality rating class from a Class B to a Class C in Crater Flat, Oasis Valley, and the Montezuma Range. In these relatively undeveloped landscapes, the BLM Preferred Alternative would be visually dominant because the transmission line would be continuously skylined and create a strong contrast in terms of form, line, and texture within the landscape setting.

Impacts to views from Sensitive Viewing Platforms (SVPs) along highways would vary, with most impacts ranging from not visually discernible to relatively unchanged. The BLM Preferred Alternative would have changes that would demand attention and dominate the visual setting within the immediate FG for seven highway SVPs (SR 156, SR 160, SR 265, SR 266, US 6, US 95, and US 95A). Views from community SVPs would remain relatively unchanged except for Stagecoach, where the BLM Preferred Alternative would begin to attract attention. The SDA SVPs would predominantly have views that would be relatively unchanged; five SDA SVPs (TUSK, Big Dune SRMA, Mason Valley WMA, Atwood Preserve, and Walker Lake SRMA) would have impacts to views that would attract attention and begin to dominate the visual setting. Changes in views along NHT SVPs would remain relatively unchanged except for the segments of the California NHT along the Carson and Walker rivers, as well as the Pony Express NHT where the transmission lines would attract attention when they would cross and pass immediately overhead. Changes in views from three of four Native American Tribe SVPs would remain relatively unchanged with the exception being the Timbisha Shoshone Reservation where the BLM Preferred Alternative would attract attention and begin to dominate the visual setting.

Based on input from public comments, NPS, and Nevada Division of State Parks, additional viewpoints were analyzed for Ice Age Fossils State Park, TUSK, and Fort Churchill State Historic Park SVPs. In addition, an NPS Visual Impact Assessment (Appendix Q) was completed for TUSK. While the BLM Preferred Alternative would be visually discernible from these three SVPs, the magnitude of change in landscape character, scenic quality, and views from these SVPs would depend on the visibility of the transmission lines, the distance that the lines would be viewed from, and the backdrop. For the Ice Age Fossils State Park SVP, the BLM has added a specific mitigation measure to reduce the color contrast of the structures of the BLM Preferred Alternative. Brown, self-weathering (Corten) finish structures would be used between the crossing of the proposed transmission line over Decatur Road near the Desert NWR boundary east to where the Proposed Action would turn south near the extension of Lamb Boulevard and the Desert NWR boundary.

The BLM Preferred Alternative would demand attention and create strong contrast within the immediate FG area of the US 95, SR 156, SR 160, SR 265, and SR 373 Key Observation Points (KOPs) and within the FG of the US 95 KOP near AS-1. As a result, the BLM Preferred Alternative from these KOPs would not be in conformance with the VRM Class III management objectives and a land use plan amendment would be required.

## **XI. CUMULATIVE IMPACTS**

The cumulative impacts that would result from the construction and O&M of the GLWP combined with past, present, or reasonably foreseeable future actions (RFFAs) were analyzed in the Final EIS/Proposed RMPA. The cumulative effects analysis is considered over a 35-year timeframe. The geographic extent of cumulative effects varies according to the affected resource analyzed. The cumulative

effects analysis does not attempt to quantify the effects of past and present human actions by adding up all prior and existing actions on an action-by-action basis. Existing conditions reflect the aggregate impact of prior human actions and natural events that have affected the environment and could contribute to cumulative effects. By looking at current conditions, the residual effects of past human actions and natural events are captured, regardless of which particular action or event contributed to those effects.

Per the BLM NEPA Handbook (H-1790-1), RFFAs are actions that have existing decisions, funding, or formal proposals or that are highly probable based on known opportunities or trends. Major RFFAs include renewable energy, transportation improvements primarily in the metropolitan areas of Las Vegas and Reno, mineral exploration and mining operations, general development projects such residential subdivisions, utilities, and wildlife conservation management and habitat restoration including two nominated ACECs (Cactus and Esmeralda/Fish Lake).

Within the Cumulative Effects Analysis Areas (CEAAs) for resources analyzed for contributions to cumulative impacts, there are an estimated 276 RFFAs, including 56 solar RFFAs. The pending solar applications are proposed over potentially 333,426 acres primarily on BLM-administered lands in Clark, Esmeralda, Mineral, and Nye counties (Appendix T). The construction of the BLM Preferred Alternative is not predicated on the development of the RFFAs along the approximately 472-mile transmission route. For example, if the ROW applications for the GLWP were denied by the federal ROW agencies, the 56 pending applications for solar projects would look at other transmission lines to distribute their generated power. All of the RFFAs may not be constructed and for the cumulative analysis, therefore there is an overestimate in the number of RFFAs and the number of acres potentially disturbed by RFFAs. The RFFAs located on federally administered lands or that use federal funds would be subject to environmental review and would be required to incorporate measures to minimize adverse impacts. Synergist/non-synergist impacts were not distinguished in the analysis of cumulative impacts. If the BLM Preferred Alternative would not contribute or have a negligible contribution to cumulative effects for a given resource/use, that resource/use is not discussed in this Executive Summary.

#### **A. Mojave Desert Tortoise**

There are an estimated 153 RFFAs within the Mojave desert tortoise CEAA (or tortoise CEAA) that would occur primarily in Clark and Nye counties. The RFFAs that would encompass the most land area would be the 35 pending applications for solar projects estimated at 213,395 acres, which is approximately 1.3 percent of the 15.8 million-acre tortoise CEAA. After the solar projects, the largest number of RFFAs within the CEAA are roadway/transportation projects planned primarily in the Las Vegas metropolitan area (38 RFFAs).

In the past, the vast majority of threats to the Mojave desert tortoise or its habitat are associated with actions that result in mortality of Mojave desert tortoise and permanent habitat loss across large areas such as urbanization, utility-scale renewable energy projects, and projects that fragment and degrade habitats such as roads and mining and mineral exploration projects. The past, present, and RFFAs have and would continue to result in Mojave desert tortoise mortality and injury due to collisions with vehicles and crushing of burrows and eggs, harassment during translocation of Mojave desert tortoises away from construction activities, and an increase in predation from unintentional roosting and foraging structures. The combination of habitat loss and fragmentation from the existing US 95 in addition to the 19 solar RFFAs in the area between North Las Vegas and Beatty is anticipated to result in long-term impacts on Mojave desert tortoise populations. The Indian Springs area as an important linkage area to connect core habitats that are fragmented by linear barriers (in this case, US 95). The remaining solar RFFAs would be

located southeast of Pahrump and in the vicinity of Moapa and would result in similar impacts to the Mojave desert tortoise population.

One of the RFFAs within the CEAA is a nomination for the 58,000-acre Cactus Springs ACEC near Indian Springs that proposes to preserve Mojave desert tortoise habitat and various natural resources. The nominated Cactus Springs ACEC, if designated through a land use planning process and management decision, would exclude solar development, which would protect approximately 44 percent of the estimated 130,606 acres of proposed solar development between Indian Springs and Amargosa Valley. This would benefit local populations of Mojave desert tortoise near Indian Springs over the long-term. Compliance with the ESA requires payment into a mitigation fund for each RFFA on federal land in Mojave desert tortoise habitat to help offset the impacts to the species and their habitats. In combination, past, present, and RFFAs would result in cumulative impacts to the Mojave desert tortoise and their habitats.

The implementation of the BLM Preferred Alternative would result in localized impacts on Mojave desert tortoise such as mortality and injury from handling and relocation, vehicles, and increased predation by ravens foraging from transmission line structures and/or disturbance to burrows; habitat degradation and fragmentation; and disturbance from increased human activity. The implementation of EMMs and the anti-perching/nesting mitigation measure would reduce some of the impacts of the GLWP on Mojave desert tortoises.

The effects of the BLM Preferred Alternative, when combined with past, present, and RFFAs, would result in cumulative effects on Mojave desert tortoise within the associated CEAA. The BLM Preferred Alternative would contribute to cumulative effects on Mojave desert tortoise within the tortoise CEAA.

## **B. Land Use and Realty**

Past and present actions have established the current land use patterns within the land use and realty CEAA. The types of RFFAs that could contribute to cumulative impacts on existing land use and realty authorizations include renewable energy projects, mining operations, utilities, and development projects. Of the 263 RFFAs identified in the land use and realty CEAA, the 55 solar RFFAs would collectively have the greatest impact on future land patterns as well as the potential to encumber future easements, ROWs, mining claims, and Special Use Permits. The number of solar RFFAs and the estimated total of 313,710 acres of BLM-administered lands that may be authorized for this single use is notable compared to the number and scale of past and present renewable energy facilities. The majority of the pending solar projects would be located in Clark and Nye counties. Both counties' comprehensive land use plans recognize their suitability for renewable energy projects and encourage responsible development of renewable energy projects. Three solar RFFAs would be located within the nominated Cactus Springs ACEC and nine others would be located within the 849,170-acre nominated Esmeralda/Fish Lake ACEC. Dispersed recreation including hunting, OHV use, and hiking would be eliminated within the fenced area of each renewable energy facility. In addition, past and present actions include the establishment of DOD land, operations at Nellis and Creech AFBs, and the NTTR. Because Nellis and Creech AFBs and the NTTR are vital military operations for national security and vital assets to Nevada, any RFFAs permitted and constructed would be limited to minimal disruption to these military operations. In combination, past, present, and RFFAs would result in cumulative impacts to land uses, land use patterns, and realty authorizations within the land use and realty CEAA.

The BLM Preferred Alternative would provide increased access for recreational opportunities and could alter the OHV use patterns in the land use and realty CEAA. The construction of new and improved access roads may increase the potential for unauthorized OHV use and illegal dumping. This would result in an



increased chance for social (unauthorized) and user-created route proliferation, which would conflict with federal land management agencies' OHV-use strategies, create management challenges, and potentially increase user conflicts. Mineral resources may exist directly underneath the permanent ROW, and some types of resources would not be practically accessible for the life of GLWP. The BLM Preferred Alternative would impact military operations in Range 77A restricted airspace and along the western boundary of the Nellis AFB Small Arms Range. The collocation of the BLM Preferred Alternative within the WWEC would benefit land uses by consolidating the overall impact of utility infrastructure.

The effects of the BLM Preferred Alternative, when combined with past, present, and RFFAs, would result in cumulative impacts to land uses and realty authorizations within the land use and realty CEAA. The BLM Preferred Alternative would contribute to the cumulative effects on local land use and realty authorizations within the land use and realty CEAA.

### **C. Visual Resources**

The major types of past, present, and RFFAs that could contribute to impacts to visual resources include transmission lines, renewable energy development, and mining and mineral exploration operations. The solar and mining RFFAs would collectively result in the greatest noticeable change to the characteristic landscape, scenic quality, and/or views from SVPs. These actions would generally result in a change in the characteristic landscape from a natural setting to a more developed setting. Of the 85 RFFAs within the visual resources CEAA, the 35 solar RFFAs would be located on an estimated 193,445 acres of BLM-administered lands. In total, the solar RFFAs would encompass an estimated 7 percent of the visual resources CEAA. The nomination of the Cactus Springs and Esmeralda/Fish Lake ACECs would conserve landscapes and would protect important visual resources in these areas. In combination, past, present, and RFFAs would result in cumulative impacts within the visual resource CEAA.

Impacts on the existing landscape character, scenic quality, and views from SVPs would vary depending on the setting, presence of existing built features, visibility conditions, distance from, and contrast created by the BLM Preferred Alternative. At specific locations, the BLM Preferred Alternative would result in changes in the visual resources where the GLWP components would create strong contrast and dominate the landscape. Visual impacts of this magnitude would be uncommon and would only occur in Class B landscapes or when the viewer would be within the immediate FG of the BLM Preferred Alternative. Other locations where the BLM Preferred Alternative would create strong contrast and dominate the landscape would be where it would cross linear SVPs multiple times, such as US 95 and the NHTs. The BLM Preferred Alternative would have impacts to visual resources that would vary from appearing unchanged to landscapes that would appear altered and views that would demand attention and dominate the visual setting.

The effects of the BLM Preferred Alternative, when combined with past, present, and RFFAs, would result in cumulative impacts on visual resources within the visual resources CEAA. Across the majority of the visual resources CEAA, visual resources impacts from the BLM Preferred Alternative would range from not being visually discernible to attracting attention to being a dominate feature in the setting. The BLM Preferred Alternative would contribute to cumulative effects on visual resources within the visual resources CEAA.

#### **D. Socioeconomic Resources and Environmental Justice**

The types of RFFAs that could contribute to cumulative impacts on socioeconomic resources and EJ populations within the socioeconomic resources and EJ populations CEAA (or socioeconomic/EJ CEAA) include, for example, renewable energy projects, transportation, and commercial and residential development. There are an estimated 256 RFFAs within the socioeconomic/EJ CEAA, including 55 solar projects on approximately 313,710 acres of BLM-administered lands. If the construction of the average renewable energy project employs 250 temporary employees over a two- to three-year period and 3-10 permanent employees, the 55 solar projects would employ approximately 12,750 temporary and 255 permanent employees. It is assumed that the renewable energy RFFAs in the socioeconomic/EJ CEAA would be constructed sequentially rather than concurrently, therefore the number of temporary employees at one time would be reduced but the employment opportunity duration would be extended. Additionally, the 64 commercial and residential development RFFAs would generally be clustered in the Las Vegas, North Las Vegas, Reno, and Sparks metropolitan areas. Therefore, these local communities would have the greatest economic and employment impacts. Of the remaining 46 RFFAs in the socioeconomic/EJ CEAA, RFFAs that would contribute to the cumulative impacts on the socioeconomic resources include the development of mining and energy-related projects and the associated transportation and utility infrastructure. The number and approximate distribution of RFFAs in the socioeconomic/EJ CEAA is substantial compared to the number and scale of past and present renewable energy facilities.

The past, present, and RFFAs in the socioeconomic/EJ CEAA have, and would have, the potential to employ local workers, which reduces unemployment and increases earnings. Payroll and sales taxes and purchased materials generated from this local employment base would produce additional revenue for the municipalities, counties, and Nevada. Given the large number of RFFAs within the socioeconomic/EJ CEAA and the likelihood that additional projects would be planned and constructed over the 35-year timeframe of the analysis, there would be an increased demand for construction workers and other skilled jobs in the renewable energy sector. The timing of these effects is largely dependent on the construction of individual RFFAs, which is uncertain. As such, impacts could vary greatly. These additional employment opportunities are important factors driving population growth.

Revenue from the RFFAs is generated by construction crews staying in local accommodations and buying meals, gas, supplies in the rural and urban communities. Depending on the construction timeframes and durations, the RFFAs may strain community services such as fire, police, and emergency response services in addition to available temporary housing. The existing infrastructure within the local communities and counties may be limited and unable to accommodate the influx of workers from concurrent RFFA development. The short-term lodging capacity that has developed over time now supports seasonal tourism, outdoor recreation markets, temporary needs associated with energy exploration and development, and occasional industrial and infrastructure construction projects. Concurrent demands from different markets can result in full occupancy of available capacity, particularly in smaller communities along interstate and other major highway corridors and near popular outdoor recreation destinations. Considering all the RFFAs, there could be noticeable shifts in population, demographics, and housing characteristics.

Cumulative effects that could be expected to impact socioeconomic resources and EJ populations include job creation; tax revenue generation; and increases in the demand for local housing, transportation systems, businesses, recreation opportunities, and public services. In combination, past, present, and

RFFAs would result in cumulative impacts on socioeconomic resources and EJ population within the socioeconomic/EJ CEAA.

The impacts from the BLM Preferred Alternative on the socioeconomic resources and EJ populations would vary depending on the location of certain GLWP components related to the number of construction workers and the length of time construction workers spend in an area. The BLM Preferred Alternative would cross Tribal lands where a lease agreement would be necessary and lease income would be provided to the Tribe for the land, creating socioeconomic revenue for the Tribes. The BLM Preferred Alternative would have impacts on socioeconomic resources from the increases in employment, income, expenditures, and Tribal and public revenues. Effects would be greatest during the construction and decommissioning phases due to the size of the workforce required. Although impacts to employment and income would be less during O&M, the ROW/lease revenue generated by the GLWP would be consistent throughout construction, O&M, and decommissioning.

The effects of the BLM Preferred Alternative, when combined with past, present, and RFFAs, would result in cumulative impacts on socioeconomic resources and EJ populations within this CEAA. The BLM Preferred Alternative would contribute to cumulative effects on the socioeconomic resources and EJ populations in the socioeconomic/EJ CEAA.

## **XII. RESOURCE MANAGEMENT PLAN AMENDMENTS**

In considering whether to process an ROW application from an outside party, the BLM must also consider existing RMPs and other BLM land use plans in terms of how the proposed authorizations and actions either conform or require a RMPA (43 CFR 1610.0-5(b)). The BLM Preferred Alternative would require several amendments to the Carson City Field Office Consolidated, Tonopah, and Las Vegas RMPs before the BLM could authorize the GLWP. Except for the RMP amendments proposed in the Final EIS/Proposed RMPA, the GLWP has been designed to conform to the existing applicable plans. Proposed amendments would modify Section 368 corridors and VRM class objectives. The BLM Preferred Alternative-related activities would be in conformance with the ROD and Land Use Plan Amendment for the Nevada and California Greater Sage-Grouse Bi-State Distinct Population Segment in the CCDO and TFO; therefore, this plan would not require an amendment.

The proposed GLWP RMP Amendments have initiated modifications to specific segments of the WWEC in the Southern Nevada District Office and Battle Mountain District Office. The modifications proposed by the GLWP RMP Amendments would meet the EAct requirement to “improve reliability, relieve congestion, and enhance the capability of the national grid to deliver electricity.” The adjustments to the designated WWECs that would require plan amendments for the BLM Preferred Alternative would be WWEC 18-224, 223-224, and 37-223(S). The width of the adjusted WWECs requiring plan amendments would not change, only the alignments.

The GLWP area would include landscapes designated as VRM Class II, III, and IV. The portions of the transmission line and the substations associated with the BLM Preferred Alternative would not be in conformance with Class III objectives established in the Las Vegas, Tonopah, and Carson City Field Office Consolidated RMPs for the management of visual resource values. When viewed from the immediate FG distance zone (0 to 0.5 miles) of the identified KOPs, construction and operation of the BLM Preferred Alternative transmission structures would create moderate to strong visual contrast in the characteristic landscape and would attract attention and dominate the landscape. Therefore, plan amendments would

be required to change the VRM class designations in the respective RMPs so that the BLM Preferred Alternative would be in VRM conformance with the respective RMPs.

In addition, the Final EIS/Proposed RMPA includes a plan amendment for the Las Vegas, Tonopah, and Carson City Field Office Consolidated RMPs to reclassify lands within the WWEC 37-223 (N), WWEC 37-223(S), WWEC 223-224, and WWEC 18-224 to VRM Class IV where the corridors encompass VRM Class II- and Class III-designated areas. The purpose of the WWECs is to designate corridors to collocate transmission lines, pipelines, and other-energy related facilities. Non-collocation of ROWs would generally lead to greater visual impacts for a larger number of viewers over a larger area. The VRM Class IV objective allows for major modification to occur and authorized activities to dominate the view. Minimizing visual contrast remains a requirement of this VRM class objective. The change to VRM Class IV would support the collocation of infrastructure project activities by consolidating the impacts to visual values within a WWEC. The areas currently unclassified for VRM within the WWECs would be reclassified to VRM Class IV.

As indicated in the NOI published in the *Federal Register* on May 2, 2022, the public was notified of the potential for plan amendments for the GLWP. The Final EIS/Proposed RMPA identifies the proposed amendments that the BLM intends to select. Plan amendments would only be implemented for GLWP components that are ultimately authorized. The BLM proposed plan amendments were subject to public review and procedures outlined in the BLM's planning regulations (43 CFR 1610.2). Pursuant to these regulations, outreach activities were conducted to gather public input on the GLWP and proposed amendments, planning criteria was developed and circulated for use in amendment evaluation, and an analysis of where plan amendments would be necessary was incorporated into the Final EIS/Proposed RMPA. The BLM plan amendment procedures also call for an extended 90-day public review of proposed plan amendments concurrently with release of the Draft EIS/RMPA. The BLM's regulations in 43 CFR 1610.3-2 require a concurrent 30-day public protest period (43 CFR 1610.5-2) and 60-day Governor's Consistency Review with release of the Final EIS/Proposed RMPA.

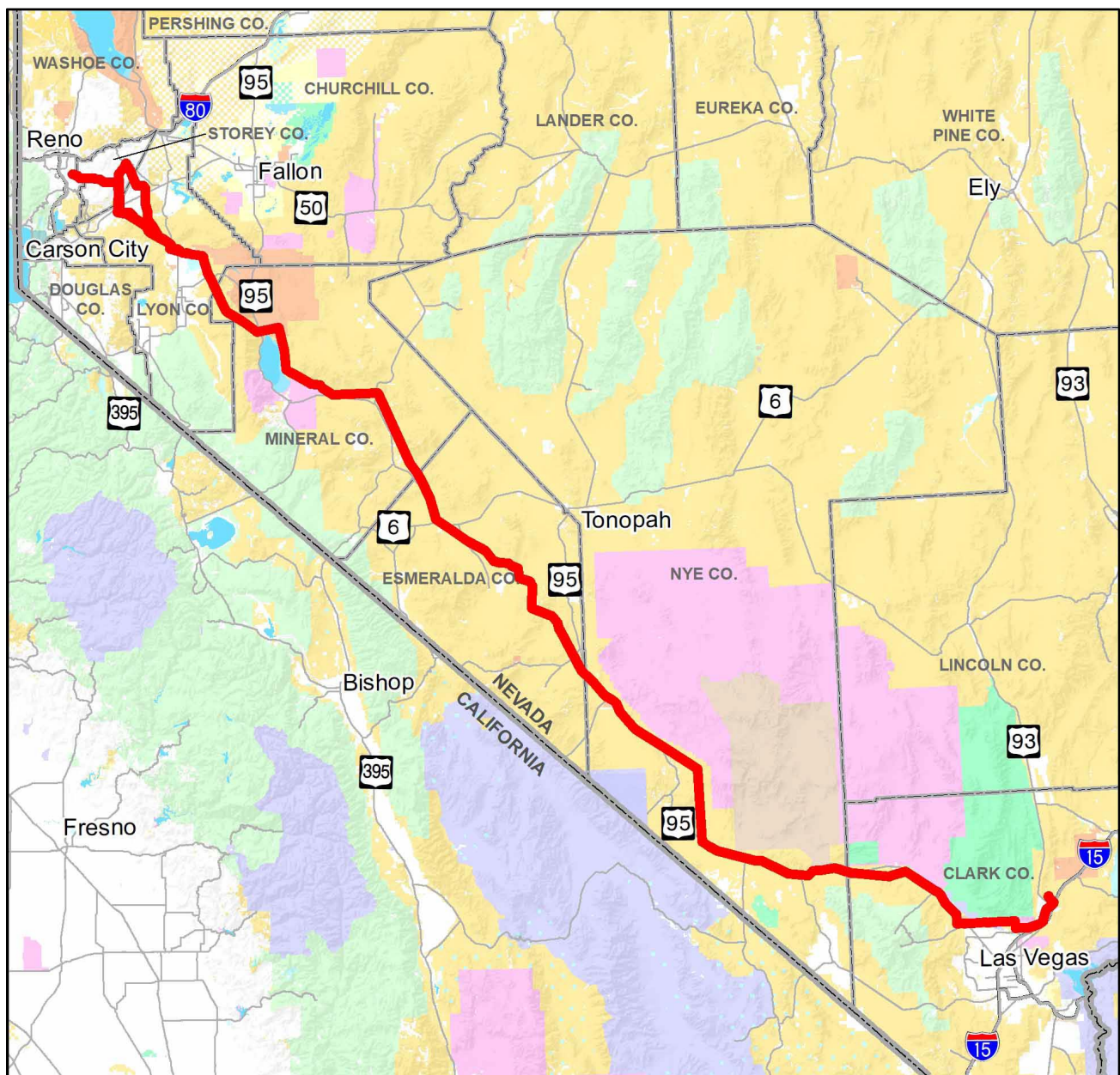
# CHAPTER 1. INTRODUCTION, PROPONENT’S GOALS, AND PURPOSE OF AND NEED FOR THE ACTION

## 1.1 Introduction













Nevada Power Company and Sierra Pacific Power Company, doing business as NV Energy (Proponent), are proposing to build the Greenlink West Transmission Project (GLWP) in western Nevada (NV). The GLWP would be an approximately 472-mile system of new 525-kilovolt (kV), 345-kV, 230-kV, and 120-kV overhead electric transmission facilities, substations, and ancillary project components that would be constructed between Las Vegas and Reno in Clark, Nye, Esmeralda, Mineral, Lyon, Storey, and Washoe counties, Nevada (Figure 1-1). The GLWP electric transmission facilities would be located predominantly on lands administered by the Bureau of Land Management (BLM) with smaller portions of the project crossing Department of Defense (DOD), Bureau of Indian Affairs (BIA), National Park Service (NPS), Department of Energy (DOE), Nevada Division of State Lands (NDSL), and Clark County lands, in addition to privately-owned lands.

This Environmental Impact Statement (EIS) has been prepared by the United States (US) Department of the Interior (DOI) with the BLM, through the Nevada State Office, as lead federal agency under the revised Council for Environmental Quality (CEQ) National Environmental Policy Act (NEPA) Revised Regulations (Revised 85 *Federal Register* 43304) (September 14, 2020). On May 20, 2022, the CEQ finalized modifications to portions of the 2020 Rule (87 FR 23453), which this Final EIS/Proposed Resource Management Plan Amendments (Final EIS/Proposed RMPA) follows. This Final EIS/Proposed RMPA also conforms to the BLM’s requirements for NEPA implementation as described in the DOI NEPA regulations (43 Code of Federal Regulations [CFR] 46) and the BLM NEPA Handbook (H-1790-1). Under the Fiscal Responsibility Act of 2023 (HR 3476), the NEPA was amended to establish time and page limits for an EIS. This EIS is consistent with Office of Environmental and Planning Compliance Frequently Asked Questions issued on April 9, 2024 (Department of Interior 2024; U. S. Department of Interior 2024). The NEPA process for evaluating the GLWP began on May 2, 2022, when a Notice of Intent (NOI) to prepare an EIS was published in the *Federal Register*.

The BLM has elected to use the NEPA process to comply with the requirements of Section 106 of the National Historic Preservation Act (NHPA), 54 United States Code (USC) § 306108, consistent with the Advisory Council on Historic Preservation’s (ACHP) regulations implementing Section 106 (36 CFR § 800.8(c)). Federal agencies’ statutory obligations under NEPA and NHPA are independent, but integrating the processes creates efficiencies, promotes transparency and accountability, and supports a broad discussion of effects to the human environment. Using the Final EIS/Proposed RMPA to comply with Section 106 is referred to as the “substitution process” and allows the BLM to consider cultural resources early in the planning stages as part of the robust NEPA process. Resolution of adverse effects will be documented in the binding Record of Decision (ROD) and as conditions of granting/permitting rights-of-way (ROW) approval rather than developing separate Memorandum of Understanding or Programmatic Agreement. The BLM notified the ACHP and the Nevada State Historic Preservation Office (SHPO) in advance of its intention to use the substitution process and is satisfying the standards set forth in the NHPA Section 106 regulations.

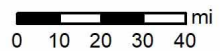


**Legend**

- |   |   |
|---|---|
|  Proposed Action Transmission Line |  US Forest Service     |
|  Bureau of Land Management         |  Indian Reservation    |
|  Department of Energy              |  National Park Service |
|  Bureau of Reclamation             |  State                 |
|  Department of Defense             |  Private               |
|  US Fish and Wildlife Service      |  Water                 |



Scale: 1:3,000,000



No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure 1-1. GLWP Location**

This Final EIS/Proposed RMPA analyzes the environmental impacts of construction, operation, maintenance, and decommissioning of the transmission system on all lands potentially crossed by the GLWP. Depending on the chosen alternative, the GLWP would potentially cross BLM and other federal lands administered by, or with trust responsibilities, the BIA, DOD, DOE, and NPS. While the Final EIS/Proposed RMPA contains sufficient information to allow the BLM to choose among alternatives, in some instances these other federal agencies may require additional information related to specific lands within their jurisdiction/oversight. Accordingly, project implementation would require the BIA, DOE, and NPS to make decisions related to granting/permitting ROW.

The BLM has included the DOD, BIA, NPS, and DOE and other federal agencies, non-federal agencies, and/or municipalities with jurisdictional authority or special expertise with respect to resource issues addressed by the NEPA analysis as cooperating agencies in this EIS process.

The Proponent filed an Application for Transportation, Utility Systems, Telecommunications, and Facilities on Federal Lands and Property (Standard Form 299) and a Preliminary Plan of Development (POD) with the BLM on July 22, 2020, for a Federal Land Policy and Management Act of 1976 (FLPMA) ROW authorization. In the application to the BLM, the Proponent has applied for a 600-foot-wide temporary ROW (1,200 feet in areas with steep terrain) for construction and a 200-foot-wide permanent ROW<sup>2</sup> for operations and maintenance (O&M). The Proponent also filed a Standard Form 299 and Preliminary POD with the NPS in May 2023 for a 105-foot permanent ROW on the Tule Springs Fossil Beds National Monument (TUSK) for the O&M of a 525-kV transmission line. Additionally, once the Proponent receives Tribal resolutions from applicable Tribal councils, the Proponent would file a request for ROWs from the BIA. While agency authorities and policies vary regarding the term (duration) of a ROW, the Proponent has requested a 30-year term (except for the term of the temporary ROWs) from the BLM, BIA, DOE, and NPS (referred to in this Final EIS/Proposed RMPA as the “federal ROW agencies”).

The decision-making process will incorporate and consider federal policies, including the February 2021 Executive Order (EO) 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis. Executive Order 13990 mandates the federal government to take steps to accelerate clean energy and transmission projects under federal siting and permitting processes in an environmentally sustainable manner.

## **1.2 Proponent Goals**

The Proponent conducts planning studies pursuant to North American Electric Reliability Corporation (NERC) Transmission System Planning Performance Requirements TPL-001-4 and must render reasonably continuous and adequate service to the public within its service area pursuant to Nevada Revised Statute 704.040 and its Certificate of Public Convenience and Necessity filed with the Public Utilities Commission of Nevada (PUCN). This means that the Proponent must plan and construct transmission facilities to deliver the projected electric demand in Nevada.

Currently, the maximum amount of power that can be provided in northern Nevada on the existing transmission network is 1,275 MW; all 1,275 MW are used by current network customers (PUCN 2019). In addition, at the time of the GLWP NOI, the Proponent had received more than 1,450 MW of new electric service requests in northern Nevada that will require additional transmission facilities. A new transmission infrastructure is required to deliver the anticipated power demand. On March 22, 2021, the Proponent

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<sup>2</sup> For the purpose of this EIS, the term “permanent” ROW refers to 30-years with option to renew, unless otherwise noted.

received approval from the PUCN for the various electric transmission facilities associated with the proposed GLWP.

The GLWP would improve the Proponent's overall system reliability by providing a critical state-wide transmission connection. According to NERC standards, the Proponent needs to provide a reliable power grid to meet the electricity needs of end-use customers. The NERC defines reliability in terms of adequacy and security. Adequacy refers to the electricity system's ability to meet the aggregate electrical demand and energy requirements of end-use customers at all times, even if there are scheduled or unscheduled system outages. Security is the power grid's ability to withstand sudden disturbances, such as electricity short circuits, while avoiding uncontrolled cascading blackouts or equipment damage (NERC 2013).

The Proponent is also governed by the Western Electricity Coordinating Council (WECC) standards and criteria, which in some instances are more stringent than NERC standards. Similarly to compliance to NERC standards, these standards require transmission systems to be planned and constructed with sufficient levels of redundancy to maintain reliable operation in the event of a loss or outage of system elements (i.e., transmission line segment or substation). Compliance with these standards is mandatory for transmission owners and planners. In the event a new transmission line fails to perform according to these reliability requirements, WECC and NERC may require the Proponent to limit the capacity or operation of the lines to levels that would not cause major disturbances or disruptions to the western region electric grid.

The GLWP would provide greater access to these renewable energy resources through a reliable, statewide, interconnected transmission grid system that renewable energy industries can access, including transmission connections to BLM-titled Designated Lease Areas (DLAs) and Nevada Solar Energy Zones (SEZ) including Amargosa Valley, Gold Point, and Millers SEZs. Although the GLWP's purpose is not for DLA and SEZ access, it would also facilitate access to these DLAs and SEZs. Transmission connections to these areas would in turn contribute to the electricity percentage that has to come from renewable energy or energy efficiency measures according to Nevada's Renewable Energy Portfolio Standard (per NV Senate Bill 358 of 2019, also referred to as "50 percent by 2030") and help meet the goal of 100 percent carbon-free resources by 2050. Providing transmission connections to renewable energy industries would help meet Nevada's statewide net Greenhouse Gas Emission Reduction requirement (per NV Senate Bill 254). In summary, the Proponent's goals are to meet the electrical demand of the end users and respond to electrical service requests, improve overall system reliability, and provide regional redundancy.

### **1.3 Purpose of and Need for the Action**

#### **1.3.1 Bureau of Land Management**

The BLM's purpose is to respond to the ROW application submitted by the Proponent to construct, operate, maintain, and decommission a system of transmission facilities and associated infrastructure that would transmit electricity between the Harry Allen Substation in Clark County and the Mira Loma and Comstock Meadows substations in Washoe County and Storey County, respectively. The need for this action is to fulfill the BLM's responsibility under FLPMA and its ROW regulations to manage the public lands for multiple uses, including the transmission of electric energy. The BLM's responsibility under FLPMA, as amended, established a multiple-use mandate for management of federal lands, including "systems for generation, transmission, and distribution of electric energy, except that the Proponent shall also comply with all applicable requirements of the Federal Energy Regulatory Commission (FERC) under the Federal Power Act, including Part I thereof (41 Stat. 1063, 16 USC 791a-825r), as outlined in Title V of FLPMA. The BLM's action in considering the Proponent's ROW application is provided under the authority



of the Secretary of the Interior to "grant, issue or renew rights-of-way... for generation, transmission, and distribution of electric energy" (43 USC 1761(a)(4)).

Additionally, the BLM's need for this action is guided by the Energy Policy Act of 2005, which directed the Secretary of the Interior to designate energy ROW corridors through federal lands and expedite applications for the construction of projects using designated corridors, including for electricity transmission and distribution facilities (42 USC 15926(a)(b)). Consideration in meeting these directives acknowledges the need for upgraded and new electricity transmission and distribution facilities to improve reliability, relieve congestion, and enhance the capability of the national grid to deliver electricity (42 USC 15926(d)).

### **1.3.2 Bureau of Indian Affairs**

The BIA's purpose, as a DOI agency with a NEPA compliance requirement, is to respond to the ROW application submitted by the Proponent to construct, operate, maintain, and decommission a transmission line over or across lands held in trust for the Las Vegas Tribe of Paiute Indians of the Las Vegas Indian Colony (Las Vegas Paiute) and Walker River Paiute Tribe. The BIA's need for this action is to fulfill its responsibility under 25 CFR Part 169 (Rights-of-Way over Indian Land) regulations to review and approve actions on Tribal trust lands. The BIA's purpose and need, pursuant to 25 USC 415, is to deny, grant, or grant with modifications the ROW agreements between the Proponent and each of these two Tribes. The final ROW grant would include any restrictions or conditions imposed in consent documents between the Proponent and respective Walker River and the Proponent and the Las Vegas Paiute Tribe.

### **1.3.3 National Park Service**

The NPS's purpose, as a DOI agency with a NEPA compliance requirement, is to respond to the application submitted by the Proponent to operate and maintain a transmission line across administered lands (TUSK) designated to conserve and protect unique and nationally important paleontological resources. The need for this action is to fulfill the NPS responsibility under NPS ROW regulations to manage TUSK in compliance with the 2015 National Defense Authorization Act (Public Law 113-291) enabling legislation and the NPS 2006 Management Policies. The NPS ROW permits are discretionary and revocable and do not convey an interest in land. All NPS ROW permit applications will be processed in accordance with the NPS ROW permitting guidance document, Reference Manual 53-B (RM-53B), and all other applicable regulations and policies, including special use permits for construction and decommissioning (36 CFR 1). Proposed uses of NPS-administered lands and waters may not be incompatible with the public interest or the NPS responsibilities under 54 USC 100101 (the 1916 Organic Act and expanded upon in 36 CFR 14). Under 54 USC 100902, the NPS has the authority to issue a ROW permit for utilities. A Special Use Permit (SUP) will be required for construction per the Office of Management Budget Control Number 1024-0026, 54 USC 100751(a) Regulations; NS 54 USC 103104 (Cost Recovery).

### **1.3.4 Department of Energy – National Nuclear Security Administration**

The NNSA's purpose, as a DOE agency with a NEPA compliance requirement, is to respond to the ROW application submitted by the Proponent to operate and maintain a transmission line over or across NNSA-administered lands. The NNSA is authorized to grant easements for ROWs by the Atomic Energy Act Section 161q (42 USC 2201(q)). A Preliminary Real Estate Plan in accordance with the NNSA Real Property Asset Management (RPAM) Guide would need to be prepared prior to ground-disturbing activities. The RPAM Guide describes the processes NNSA uses to manage real property assets in accordance with the

DOE Order 430.1C, Real Property Asset Management, and NNSA Supplemental Directive 430.1. Because access to the NNSA’s Nevada National Security Site (NNS) is restricted, the Proponent would be required to follow all applicable NNS security procedures and protocols upon issuance of the easement.

### 1.3.5 Decisions to be Made

Table 1-1 summarizes the federal ROW agencies decisions to be made for the GLWP. If approved, the federal ROW agencies would assist in addressing the management objectives in Secretarial Order 3285A1 (March 11, 2009, as amended February 22, 2010) that established the development of environmentally responsible renewable energy as a priority for the DOI. The BLM, BIA, DOE, NPS, and other Cooperating Agencies can use this Final EIS/Proposed RMPA to comply with NEPA and other applicable laws to support their analyses and decisions, as needed.

**Table 1-1. Summary of Agency Decisions to be Made**

<b>Agency</b>	<b>Action</b>
BLM	Approval, modification, or denial of ROW for BLM-administered lands for the construction and O&M of the GLWP transmission line and associated facilities.
BIA	Deny, grant, or grant with modifications the ROW agreements for portions of the GLWP located on the Las Vegas Paiute Reservation – Snow Mountain and the Walker River Indian Reservation.
DOE	Approval or denial of an application requesting an easement to authorize use of NNSA-administered lands for GLWP O&M on a portion of the NNS.
NPS	Approval or denial of an application requesting a ROW permit to authorize use of NPS-administered lands for GLWP O&M. Approve a temporary construction permit for the initial and future construction activities with conditions deemed necessary by the NPS.

*Table Acronym(s):* BLM – Bureau of Land Management; BIA – Bureau of Indian Affairs; DOE – Department of Energy; GLWP – Greenlink West Transmission Project; NNSA – National Nuclear Security Administration; NPS – National Park Service; NNS – Nevada National Security Site; O&M – Operations and Maintenance; ROW – Right-of-Way

### 1.4 Land Use and Management Plan Conformance

Actions approved or authorized by the BLM must conform to the approved land-use plans (Resource Management Plans [RMPs]) for the lands they administer (43 CFR 1610.5-3). The BLM must consider existing RMPs in the decision to issue a ROW grant, in accordance with 43 CFR 1610.5-5(b). Land-use plans or RMPs that apply to each BLM field office (FO) or district office (DO) provide public land and resource management direction. If a proposed project is not in conformance, the BLM can choose to either deny the project, adjust the project to conform to the RMP, or amend the RMP to address the nonconformance (BLM 2005). Applicable RMP planning areas that would be crossed by the GLWP are:

- Approved Tonopah RMP and ROD (BLM 1997)
- ROD for the Approved Las Vegas RMP and Final EIS (BLM 1998a)
- Approved Carson City Field Office Consolidated RMP (BLM 2001)
- ROD and Land Use Plan Amendment for the Nevada and California Greater Sage-Grouse Bi-State Distinct Population Segment in the Carson City District and Tonopah Field Office (BLM 2016b)
- Approved RMP/ROD for Designation of Energy Corridors on BLM-Administered Lands in the 11 Western States (BLM 2009)

Portions of GLWP-related activities would not be in conformance with certain planning decisions (or allocations) in the applicable RMPs for the Carson City District Office (CCDO), Tonopah Field Office (TFO), and Southern Nevada (SNDO). Potential amendments would modify Section 368 corridors and Visual

Resource Management (VRM) class objectives. Therefore, an amendment to those RMPs is analyzed in this Final EIS/Proposed RMPA as discussed under Chapter 4. Resource Management Plan (Land Use Plan) Amendments. The GLWP-related activities would be in conformance with the ROD and Land Use Plan Amendment for the Nevada and California Greater Sage-Grouse Bi-State Distinct Population Segment in the CCDO and TFO; therefore, no amendment would be necessary to this management plan.

As required by the 1978 National Parks and Recreation Act, the NPS must develop a General Management Plan for the NPS-administered lands. The purpose of the plan is to ensure that each NPS area has a defined direction for resource preservation and visitor use. The General Management Plan focuses on why the area was established and what resource conditions and visitor experiences should be achieved and maintained over time. The NPS is currently in the process of completing a General Management Plan for TUSK, with an expected completion date in summer of 2024. Basic guidance for planning and management decisions for TUSK can be found within the 2019 Foundation Document.

The BIA does not manage the use of the reservation lands. It should be noted that portions of the GLWP that would cross reservation lands would be regulated under the specific Tribal environmental policies and/or ordinances, in accordance with NEPA, and in compliance with other federal regulations that apply on Tribal lands (state, county, and local laws and policies are not applicable to Tribal lands). Any conditions would be identified through the Tribal resolutions and applicable stipulations and use conditions would be included in the lease agreement.

## **1.5 Applicable Laws, Statutes, and Regulations**

The FLPMA and its implementing regulations provide the legal framework that the BLM uses to manage public lands and assess the effects of its management actions. This EIS is being prepared in compliance with the 2020 CEQ NEPA Regulations and applicable DOI policies and manuals. Additionally, the BLM has elected to use this Final EIS/Proposed RMPA and the NEPA process to comply with the requirements of Section 106 of the NHPA (54 USC 306108) consistent with 36 CFR 800.8(c). The GLWP review and possible authorization is also subject to the requirements for consistency and conformance with other applicable federal laws, regulations, and policies. Table A-1 in Appendix A lists the relevant actions and authorities that must be obtained or considered for the GLWP. Table A-2 in Appendix A provides a list and summary of other federal, state, and county authorities and actions that may be applicable to this Final EIS/Proposed RMPA.

## **1.6 Lead Agency and Cooperating Agencies**

The BLM, through the Nevada State Office, is the lead federal agency responsible for preparing this EIS and associated analyses. CEQ regulations addressing the status of cooperating agencies (40 CFR 1501.8 and 1508.5) implement the NEPA requirement that federal agencies responsible for preparing NEPA analyses and documentation do so in cooperation with state governments, local governments, and other agencies with jurisdiction by law or special expertise. Additionally, the BLM, through the Nevada State Office, is the lead federal agency for purposes of compliance with Section 106 of the NHPA (36 CFR 800.2(a)(2)). Other agencies with approval authority over the GLWP have designated the BLM as the lead federal agency for Section 106 compliance and are using the NEPA substitution process, Final EIS/Proposed RMPA, and ROD to meet their Section 106 compliance responsibilities.

The BLM invited various federal agencies, state agencies, county agencies, and Tribal governments to participate as Cooperating Agencies beginning in March and June of 2021. Refer to Table 1-2 through Table 1-7 for a list of participating Cooperating Agencies and consulting parties. In addition to the list of

agencies below, the ACHP and Nevada SHPO were invited to be Cooperating Agencies under NEPA and consulting parties under NHPA.

The Cooperating Agency relationship ensures that the BLM engages and considers these agencies' comments when making project decisions and includes information required to satisfy the associated environmental and public review processes. The Cooperating Agencies are responsible for assisting the BLM with identifying issues to be addressed, providing associated data or feedback, assisting with development of alternatives, and providing review and feedback on the NEPA document. In addition to cooperating with other agencies and governments, the BLM, as the lead federal agency, has a responsibility to involve the public throughout the NEPA process.

**Table 1-2. Federal Cooperating Agencies and Consulting Parties**

<b>Agency</b>	<b>Status</b>
Advisory Council on Historic Preservation	Cooperating Agency, Consulting Party
BIA – Pacific Region	Cooperating Agency
BIA – Western Region	Cooperating Agency, Consulting Party
Department of the Air Force	Cooperating Agency, Consulting Party
NNSA	Cooperating Agency, Consulting Party
NPS	Cooperating Agency, Consulting Party
US Army and Air National Guard	Cooperating Agency
US Environmental Protection Agency Region 9	Cooperating Agency
US Fish and Wildlife Service	Cooperating Agency, Consulting Party

*Table Acronym(s):* BIA – Bureau of Indian Affairs; NNSA – National Nuclear Security Administration; NPS – National Park Service; US – United States

**Table 1-3. Native American Tribes Cooperating Agencies and Consulting Parties**

<b>Native American Tribe</b>	<b>Status</b>
Big Pine Paiute Tribe of the Owens Valley	Consulting Party
Bishop Paiute Tribe	Consulting Party
Bridgeport Indian Colony	Consulting Party
Burns Paiute Tribe	Consulting Party
Chemehuevi Indian Tribe	Consulting Party
Colorado River Indian Tribes	Consulting Party
Confederated Tribes of Warm Springs	Consulting Party
Duckwater Shoshone Tribe	Consulting Party
Fallon Paiute-Shoshone Tribe	Consulting Party
Fort Independence Indian Community of Paiute Indians	Consulting Party
Fort McDermitt Paiute and Shoshone Tribes	Consulting Party
Fort Mojave Indian Tribe	Consulting Party
Havasupai Tribe	Consulting Party
Hopi Tribe	Consulting Party
Hualapai Tribe	Consulting Party
Kaibab Band of Paiute Indians	Consulting Party
Las Vegas Paiute Tribe	Cooperating Agency, Consulting Party
Lone Pine Paiute Shoshone Tribe	Consulting Party
Lovelock Paiute Tribe	Consulting Party
Moapa Band of Paiute Indians	Consulting Party
Paiute Indian Tribe of Utah	Consulting Party

**Table 1-3. Native American Tribes Cooperating Agencies and Consulting Parties (continued)**

Pyramid Lake Paiute Tribe	Consulting Party
Reno-Sparks Indian Colony	Consulting Party
San Juan Southern Paiute Tribe of Arizona	Consulting Party
Shoshone-Paiute Tribes of the Duck Valley Indian Reservation	Consulting Party
Summit Lake Paiute Tribe	Consulting Party
Timbisha Shoshone Tribe	Cooperating Agency, Consulting Party
Twenty-Nine Palms Band of Mission Indians	Consulting Party
Utu Utu Gwaitu Paiute Tribe of the Benton Reservation	Consulting Party
Walker River Paiute Tribe	Cooperating Agency, Consulting Party
Washoe Tribe of Nevada & California	Consulting Party
Winnemucca Indian Colony	Consulting Party
Yerington Paiute Tribe	Consulting Party
Yomba Shoshone Tribe	Consulting Party
Pahrump Paiute Tribe (not federally recognized)	Consulting Party

**Table 1-4. State Cooperating Agencies and Consulting Parties**

Agency	Status
Comstock Historic District Commission	Consulting Party
Nevada Department of Transportation	Cooperating Agency
Nevada Department of Wildlife	Cooperating Agency
Nevada Division of Environmental Protection	Cooperating Agency
Nevada Division of Minerals	Cooperating Agency
Nevada Division of State Parks	Consulting Party
Nevada Division of State Lands	Cooperating Agency
Nevada State Historic Preservation Office	Consulting Party
Southern Nevada Water Authority	Cooperating Agency

**Table 1-5. Municipal Cooperating Agencies and Consulting Parties**

Agency	Status
City of North Las Vegas	Cooperating Agency
City of Reno	Cooperating Agency
Town of Tonopah	Cooperating Agency

**Table 1-6. County Cooperating Agencies and Consulting Parties**

Agency	Status
Clark County	Cooperating Agency
Esmeralda County	Cooperating Agency
Nye County	Cooperating Agency

**Table 1-7. Organizations Cooperating Agencies and Consulting Parties**

Organization	Status
National Pony Express Association	Consulting Party
Old Spanish Trail Association	Consulting Party
Oregon-California Trail Association	Consulting Party

## 1.7 Public Scoping

Pre-NOI activities to seek public input for the GLWP began in May 2021, as public input workshops, Cooperating Agency meetings, consulting party meetings, coordination and consultation meetings with Tribal governments, and individual stakeholder meetings. Comments received during these activities helped guide resource considerations and alternative route and key component development.

As previously noted, the public scoping process began on May 2, 2022, when the BLM published the NOI to prepare an EIS in the *Federal Register*. The NOI briefly described the purpose of and need for the GLWP, the preliminary description of the Proposed Action and the other alternatives considered, and a brief summary of the expected impacts from the alternatives. In addition, a preliminary project schedule for the decision-making process was included. Additional information regarding the scoping process is included in Section 5.4 Scoping Process.

The BLM also identified issues through internal scoping among the BLM interdisciplinary staff. The Scoping Report and the BLM consultation and coordination documentation are available on the BLM National NEPA Register website at: <https://eplanning.blm.gov/eplanning-ui/project/2017391>.

### 1.7.1 Issues Identified During Scoping

A total of 81 comment letters/emails/forms were submitted during the 30-day scoping period. Nine of the comment letters were duplicates of a comment letter previously submitted in another format. Of the 81 comment letters/emails/forms, 52 were submitted by private citizens and business owners, 22 were submitted on behalf of non-governmental and trade organizations, and seven from agencies. After evaluating the comments received during the public scoping period, several key issues emerged. The issues were synthesized into topical areas that represent the most frequent public concerns about the GLWP. These issues and topical areas defined the focus of the NEPA analyses included in this Final EIS/Proposed RMPA. Resources that received the most comments during the public scoping period are provided below:

- Alternatives
- Federally Listed Species
- General Environmental Effects/Impacts
- General Questions
- Proponent Proposed Action
- Recreation
- Resource Management Plan/Land Use
- Socioeconomic/Environmental Justice Issues
- Solar/Renewable Energy Projects
- Vegetation/Weeds/Wetlands/Riparian Areas
- Visual Quality
- Wildlife

## 1.7.2 Issues Identified for Analysis

According to the BLM's 2008 NEPA Handbook (H-1790-1), Section 6.4, "for the purposes of BLM NEPA analysis, an 'issue' is a point of disagreement, debate, or dispute with a proposed action, based on some anticipated environmental effect." The handbook also states that an issue:

- has a cause and effect relationship with the proposed action or alternatives;
- is within the scope of the analysis;
- has not been decided by law, regulation, or previous decision; and
- is amenable to scientific analysis rather than conjecture.

While many issues are identified during the scoping process, not all identified issues warrant analysis in the Final EIS/Proposed RMPA. Issues identified in scoping warrant inclusion in the Final EIS/Proposed RMPA if analysis of the issue is necessary to make a reasoned choice among the alternatives; if the issue is associated with a significant direct, indirect, or cumulative impact; or if analysis of the issue is necessary to determine the significance of the impacts. The issues identified for analysis have been included in each resource/use analysis section in Chapter 3.

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## **CHAPTER 2. PROPOSED ACTION AND ALTERNATIVES**

This chapter provides a summary of the construction, O&M, and decommissioning of the GLWP electrical transmission system and associated facilities. A detailed description of the Proposed Action is provided in the GLWP Preliminary POD (NV Energy 2023) (Appendix B). Chapter 2 also describes and compares the key features of the Proposed Action and the other Action Alternatives considered. The term “Action Alternatives” refers to the alternatives that would require construction, O&M, and decommissioning of the GLWP. In total, the alternatives development and screening process has culminated in the identification and preliminary screening of potential Action Alternatives focused on nine areas of transmission route alternatives, two areas of substation alternatives, and one area for new microwave adjustments.

In addition to developing and evaluating the Action Alternatives for analysis, this Final EIS/Proposed RMPA also analyzes the No Action Alternative, which is the continuation of current management of the federal lands. The federal ROW agencies would deny the Proponent’s ROW applications. The No Action Alternative provides a useful baseline for comparing the environmental effects associated with the GLWP alternatives and would not involve any development of an electrical transmission system or associated facilities.

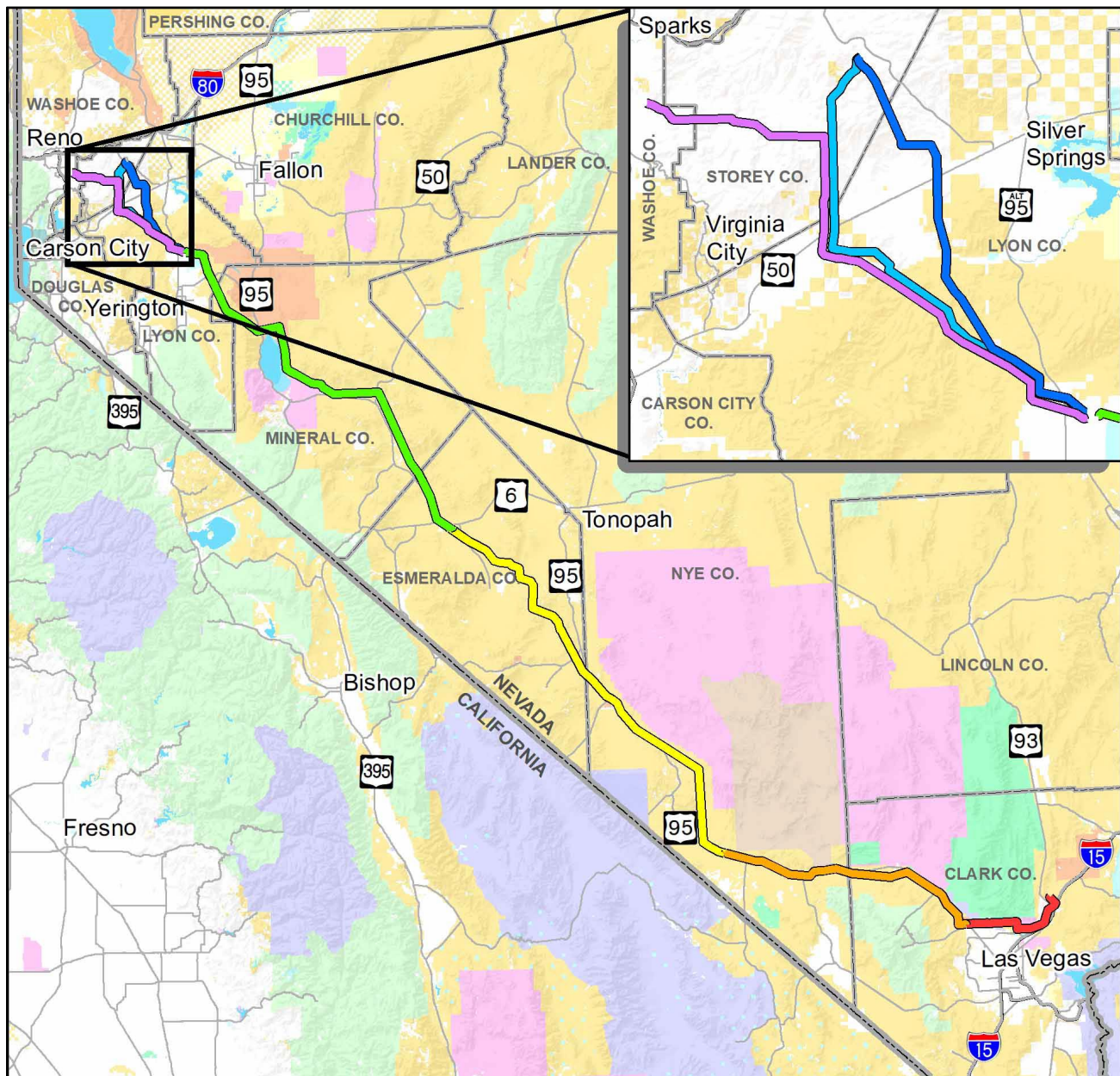
The Proposed Action would have the capability to transmit power generated by existing and/or reasonably foreseeable future renewable or non-renewable sources in Nevada. These reasonably foreseeable future actions (RFFAs) include a variety of renewable energy-generating projects and are disclosed in Appendix T. While these reasonably foreseeable energy-generating projects may eventually transmit through the GLWP, this transmission line would be independent and would not be exclusively dependent on any of those planned projects. This Final EIS/Proposed RMPA analyzes the energy-generating RFFAs as well as other types of RFFAs in Section 3.18 Cumulative Impacts.

### **2.1 Proposed Action**

#### **2.1.1 Route Description**

The Proponent initially defined a 20-mile-wide routing and siting study area (10 miles on either side of West-wide Energy Corridors [WWEC]) to include potential alternatives for the location of a new transmission line(s) from the Reno area to the Fort Churchill Substation near Yerington, Nevada, and to the Harry Allen Substation near North Las Vegas, Nevada. The study area was reviewed to identify potential feasible route corridors and the Proponent evaluated the constraints and opportunities within the study area. To the extent practicable, the route of the Proposed Action incorporated the Proponent’s preference for a 1,000-foot separation distance when paralleling existing high-voltage facilities; considered initial environmental constraints; and incorporated engineering considerations, efficiency, and constructability (NV Energy 2023).

The 525-kV facilities would begin at the new Fort Churchill Substation located approximately 10 miles north of Yerington in Lyon County; traverse approximately 358.1 miles through portions of Lyon, Mineral, Esmeralda, Nye, and Clark counties; and terminate at the Harry Allen Substation approximately 10 miles north of North Las Vegas, Clark County (Figure 2-1). The 525-kV transmission line would generally follow US Highway 95 (US 95) and the WWEC (BLM 2009) for the majority of its length. The 525-kV transmission

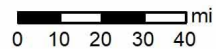


**Legend**

- |  |  |  |                              |
|--|--|--|------------------------------|
|  | 525-kV Harry Allen to Northwest              |  | Bureau of Land Management    |
|  | 525-kV Northwest to Amargosa                 |  | Department of Energy         |
|  | 525-kV Amargosa to Esmeralda                 |  | Bureau of Reclamation        |
|  | 525-kV Esmeralda to Fort Churchill           |  | Department of Defense        |
|  | 345-kV Fort Churchill to Comstock Meadows #1 |  | US Fish and Wildlife Service |
|  | 345-kV Fort Churchill to Comstock Meadows #2 |  | US Forest Service            |
|  | 345-kV Fort Churchill to Mira Loma           |  | Indian Reservation           |
|  |  |  | National Park Service        |
|  |  |  | State                        |
|  |  |  | Private                      |
|  |  |  | Water                        |



Scale: 1:3,000,000



No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure 2-1. Proposed Action Transmission Lines**

line would cross approximately 320.4 miles of BLM-administered land, approximately 3.9 miles of DOD land, approximately 21.2 miles of Tribal lands, approximately 1.5 miles of NPS-administered land, approximately 4.9 miles of NDSL, approximately 2.0 miles of Clark County land, and approximately 4.1 miles of private land. Due to rounding, the total mileage identified by ownership/management agency may not sum precisely.

Three 345-kV transmission lines would begin at the Fort Churchill Substation and traverse approximately 33 to 44 miles through portions of Lyon, Storey, and Washoe counties. These 345-kV lines would reinforce the Reno area transmission system for redundancy and reliability and are critical to distributing the 525-kV energy to the major load centers. The 345-kV Fort Churchill to Comstock Meadows #1 and #2 transmission lines would terminate at the existing Comstock Meadows Substation approximately 12 miles northwest of Silver Springs in Lyon County, and the third transmission line (345-kV Fort Churchill to Mira Loma) would terminate at the existing Mira Loma Substation in south Reno, Washoe County. Together, the three 345-kV facilities would cross approximately 44.4 miles of BLM-administered land and approximately 69.5 miles of private land.

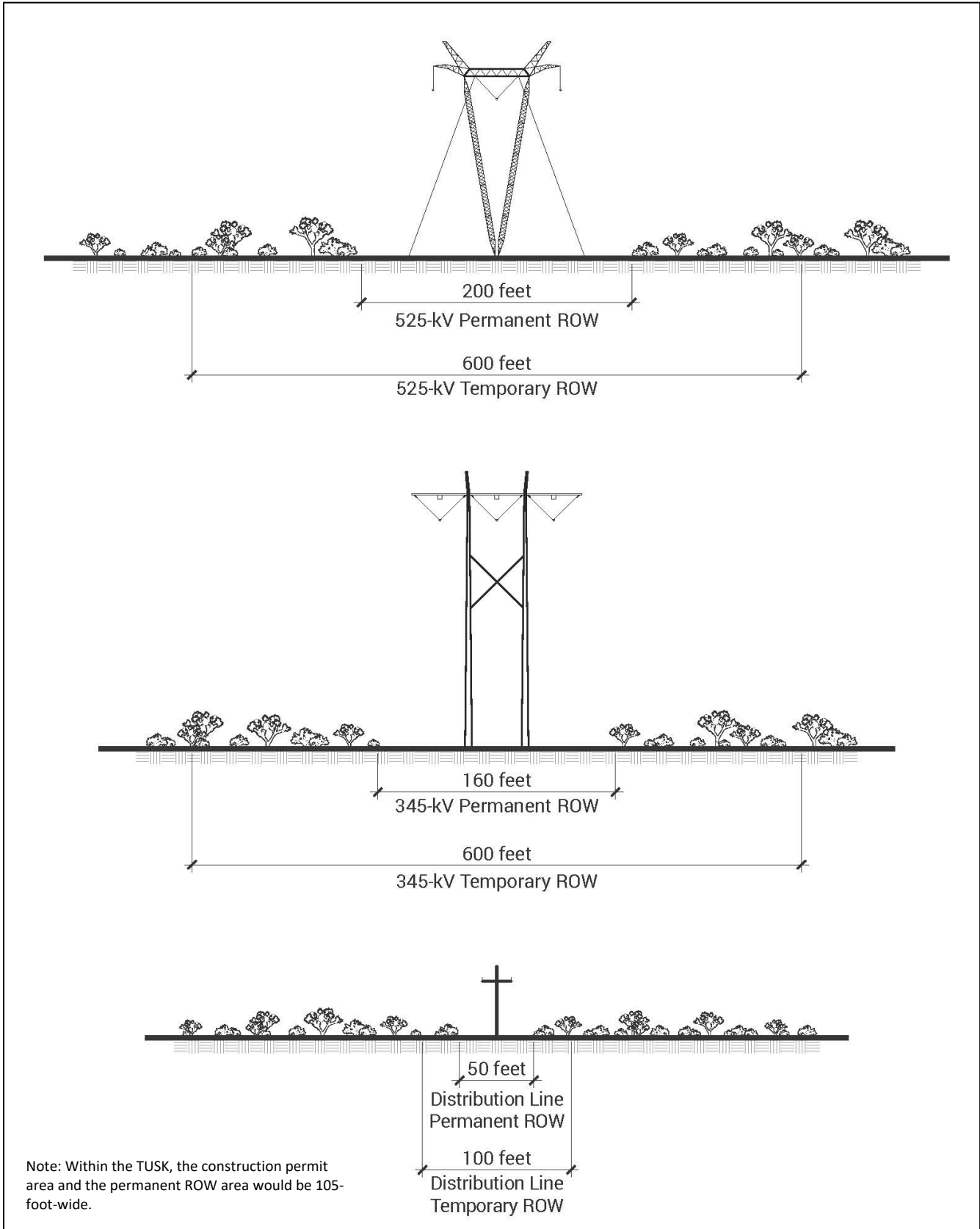
### **2.1.2 Federal ROW Actions**

The Proponent will need to obtain ROWs from federal agencies. The Proponent has or will apply to the federal ROW agencies for temporary and permanent ROWs, as applicable. Except within the TUSK, the temporary ROW is 600-foot-wide (1,200 feet in areas with steep terrain) for construction of the 525-kV and 345-kV transmission lines and 100-foot-wide for construction of the distribution lines. The Proponent will/has requested a maximum permanent ROW of 200-foot-wide for O&M and decommissioning of the 525-kV transmission line, 160-foot-wide ROW for the 345-kV transmission lines, and 50-foot-wide ROW for the distribution lines (Figure 2-2). Within the TUSK, the Proponent has requested a 105-foot-wide permanent ROW area. The Proponent has estimated centerline and infrastructure requirements for the Proposed Action and the other Action Alternatives. The Proponent took topography, existing development, and other identified design challenges into account. In some areas, the ROW may need minor adjustments to avoid certain natural and cultural resources and to accommodate terrain, slope, and/or other facilities. The Proponent would likely modify the proposed ROW further during final engineering. These potential ROW variations are within the scope of the Final EIS/Proposed RMPA analysis.

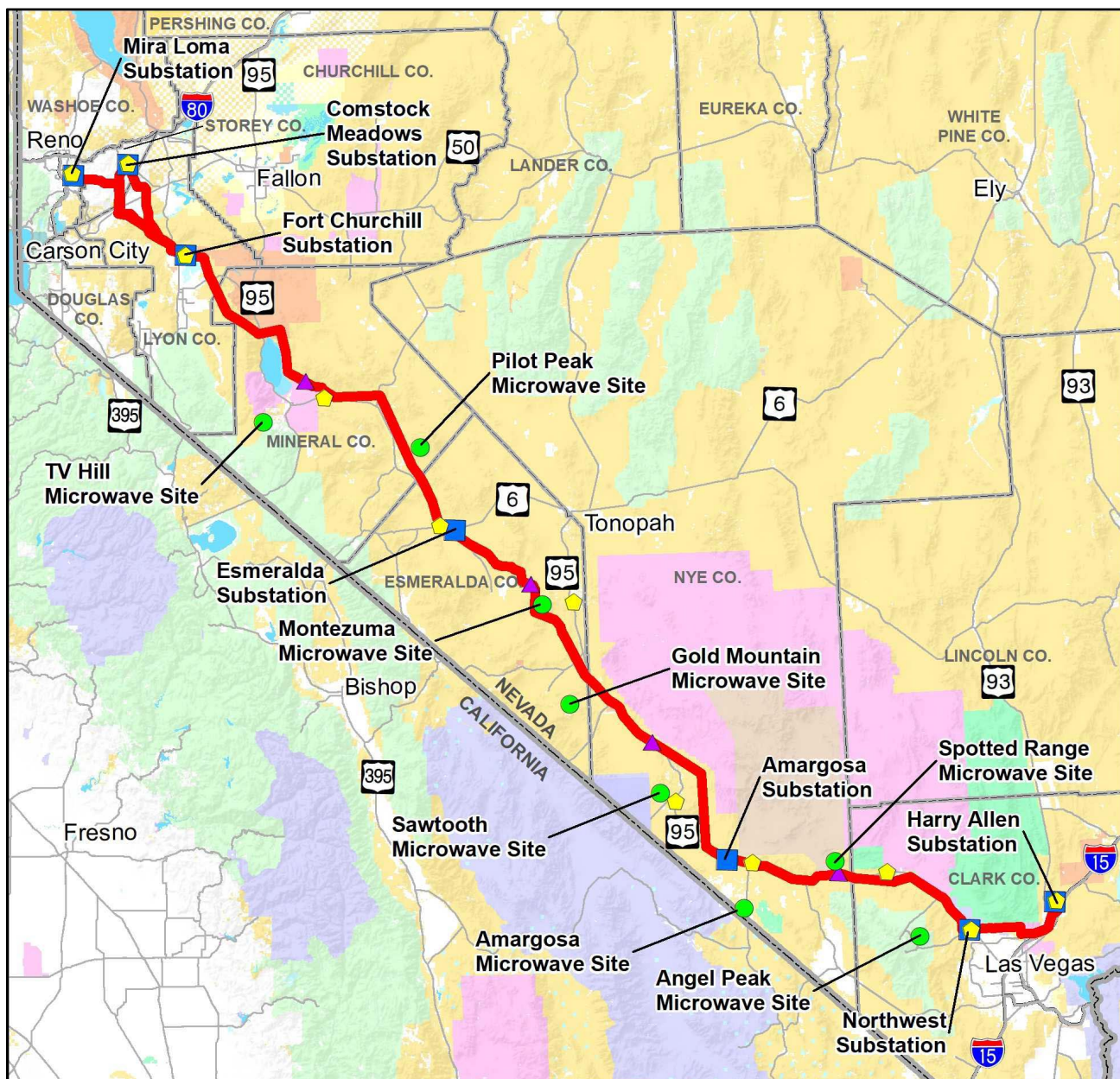
The ROW has been designed to allow for equipment movement and operation during construction and maintenance, safe construction of the GLWP facilities, and sufficient clearance between conductors and the ROW edge as required by the National Electrical Safety Code (2017). While the majority of access road maintenance would be located within the 200-foot-wide corridor, some access roads would be outside the corridor to optimize the use of existing roads. The Proponent has or will apply for a 30-year ROW grant/permit/easement from the federal ROW agencies for the purposes of constructing, operating, maintaining, and decommissioning the GLWP with an option for renewal at the end of the grant/permit/easement. The ROW grant/permit/easement renewal would be subject to additional environmental review. In addition to the ROWs, the Proponent must obtain all authorizations (e.g., ROWs, permits, easements).

### **2.1.3 GLWP Components**

The GLWP components consist of transmission and distribution lines, substations, microwave radio facilities, amplifier sites, access roads, and construction yards (Figure 2-3). Descriptions of the conductors, insulators, and grounding systems are provided in the GLWP Preliminary POD (NV Energy 2023). All poles



**Figure 2-2. Transmission (525-kV and 345-kV) and Distribution Transmission Lines Temporary and Permanent ROWs**

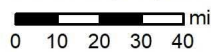


**Legend**

- |                                     |                                |
|-------------------------------------|--------------------------------|
| ▲ Amplifier Site                    | ■ Bureau of Reclamation        |
| ◆ Construction Yard                 | ■ Department of Defense        |
| ● Microwave Site                    | ■ US Fish and Wildlife Service |
| ■ Substation                        | ■ US Forest Service            |
| — Proposed Action Transmission Line | ■ Indian Reservation           |
| ■ Bureau of Land Management         | ■ National Park Service        |
| ■ Department of Energy              | ■ State                        |
|                                     | ■ Private                      |
|                                     | ■ Water                        |



Scale: 1:3,000,000



No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure 2-3. Proposed Action Components**

would be electrically grounded through ground rods. The lines would meet or exceed the requirements of the (National Electrical Safety Code [NESC] 2017).

As proposed, the disturbance is described as temporary (generally, during construction, projected to be from approximately three years to up to five years) and permanent (generally, for the life of the GLWP, anticipated to be 30 years, and could be renewed). The GLWP would result in an estimate of approximately 17,309 acres of temporary disturbance and approximately 4,492 acres of permanent disturbance caused by the construction and O&M of the GLWP. Table 2-1 shows the estimated temporary and permanent ROW areas from the Proposed Action (with the exception of the 105-foot-wide ROW in the TUSK). Further details regarding the locations of these components are included in Attachment B: Project Maps of the GLWP Preliminary POD (Appendix B).

### **Transmission and Distribution Lines**

The transmission and distribution lines would include the placement of tangent, angle, and dead-end structures. For the 525-kV transmission lines, tangent structures would consist of steel pole H-Frame, steel monopole, or steel lattice structures. Dead-end and angle structures would consist of steel monopole, three-pole structures, or lattice towers.

Tangent structures, also referred to as straight-through structures, are the most commonly used structure types when electrical and distribution lines generally run in a straight line. Angle structures are used at points where a line undergoes a change in direction. Angle structures are specially reinforced—heavier and with deeper foundations—to withstand the stress placed on them by wires pulling in different directions. Dead-end structures are used wherever a line ends or at any point where excess stress is placed on the structures or its components (Fang et al. 1999).

The 525-kV Fort Churchill-Northwest Line and 525-kV Harry Allen-Northwest Line (refer to Figure 2-1) would include the combined placement of approximately 1,495 tangent structures and 119 dead-end and angle structures. The transmission line itself would consist of three phases per circuit with three conductors per phase and would also include one extra-high-strength steel shield wire and one optical ground wire (OPGW) fiber optic shield wire for control and operation of the transmission system.

The 525-kV Harry Allen-Northwest Line would cross the TUSK. The Proposed Action would consist of 11 steel vertical monopole structures, located approximately five feet within the TUSK<sup>3</sup>. The northern edge of the maintenance pad would be 55 feet north of the TUSK boundary. Within the TUSK, the Proponent has requested a 105-foot-wide permanent ROW. The additional 50 feet of ROW would allow for construction of other compatible facilities by others within the TUSK and would avoid elevated induced voltages, audible noise, or radio interference. In order to accommodate construction activities within the TUSK, a temporary 55-foot by 250-foot workspace for each structure would be disturbed for installation of the structure within the TUSK. For the 11 monopole structures within the TUSK, approximately 3.5 acres would be disturbed during construction, which would include the work area to accommodate equipment and activities.

The 345-kV Fort Churchill-Comstock Meadows #1 Line would include the placement of approximately 168 tangent structures and 23 dead-end and angle structures (refer to Figure 2-1). Tangent 345-kV structures would consist of steel pole H-Frame or steel monopole structures and dead-end structures would consist of steel three-pole or steel monopole structures. The transmission line would consist of

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<sup>3</sup> The 55-foot spacing between the existing 230-kV and proposed 525-kV lines is required to maintain minimum approach distance from the energized line and personnel working from a manlift placed between the structures pursuant to the Occupational Safety and Health Administration (OSHA) 29 CFR 1910.269 and OSHA 29 CFR Part 1926 Subpart V; DCD Appendix E Table 2.

**Table 2-1. Estimated GLWP Temporary and Permanent Disturbance Areas**

<b>Component</b>	<b>Temporary Disturbance</b>	<b>Temporary Disturbance Area<sup>a</sup> (acres)</b>	<b>Permanent Disturbance</b>	<b>Permanent Disturbance Area<sup>a</sup> (acres)</b>
525-kV Tangent Structure Work Area	1,495 sites x 200 feet x 250 feet	1,716	None	0 <sup>b</sup>
525-kV Dead-end/ Angle Structure Work Area	119 sites x 200 feet x 400 feet	219	None	0 <sup>b</sup>
525-kV Guard Structure Work Area	154 sites x 200 feet x 100 feet	71	None	0 <sup>b</sup>
345-kV Tangent Structure Work Area	507 sites x 160 feet x 250 feet	466	None	0 <sup>b</sup>
345-kV Dead-end/ Angle Structure Work Area	73 sites x 160 feet x 400 feet	107	None	0 <sup>b</sup>
345-kV Guard Structure Work Area	80 sites x 160 feet x 100 feet	29	None	0 <sup>b</sup>
525-kV Structure Pad	None	0 <sup>c</sup>	813 sites x 100 feet x 100 feet	187
525-kV Structure Pad in Mojave Desert Tortoise Habitat <sup>d</sup>	None	0 <sup>c</sup>	801 sites x 200 feet x 200 feet	736
345-kV Structure Pad	None	0 <sup>c</sup>	580 sites x 100 feet x 100 feet	133
Distribution Line Structure Work Area	726 sites x 100 feet x 100 feet	167	None	0 <sup>b</sup>
Distribution Line Structure Pad	None	0 <sup>c</sup>	736 sites x 50 feet x 50 feet	42
525-kV Point of Intersection Pull Site	69 sites x 35.32 acres (on average)	2,437	None	0 <sup>b</sup>
525-kV Mid-Span Pull Site	180 sites x 200 feet x 600 feet	496	None	0 <sup>b</sup>
345-kV Point of Intersection Pull Site	46 sites x 35.32 acres (on average)	1,625	None	0 <sup>b</sup>
345-kV Mid-Span Pull Site	47 sites x 160 feet x 600 feet	104	None	0 <sup>b</sup>
Construction Yard	11 sites x 25 acres (on average)	268	None	0 <sup>b</sup>
Helicopter Yard	84 sites x 15 acres (on average)	1,264	None	0 <sup>b</sup>
Northwest Substation (expansion area)	22 acres	22	22 acres	22
Amargosa Substation	110 acres	110	110 acres	110
Esmeralda Substation	109 acres	109	109 acres	109
Fort Churchill Substation (expansion area)	360 acres	360	360 acres	360
Harry Allen Substation	No new disturbance	0	No new disturbance	0
Mira Loma Substation	No new disturbance	0	No new disturbance	0

**Table 2-1. Estimated GLWP Temporary and Permanent Disturbance Areas  
(continued)**

<b>Component</b>	<b>Temporary Disturbance</b>	<b>Temporary Disturbance Area<sup>a</sup> (acres)</b>	<b>Permanent Disturbance</b>	<b>Permanent Disturbance Area<sup>a</sup> (acres)</b>
Comstock Meadows Substation	No new disturbance	0	No new disturbance	0
Microwave Radio Facility	7 sites x 1 acre (on average)	7	7 sites x 1 acre (on average)	7
Optical Amplifier Site	4 sites x 1 acre (on average)	4	4 sites x 1 acre (on average)	4
Fiber Optic Cables (underground)	Varied linear miles x 8 feet wide	<1	Varied linear miles x 8 feet wide	<1
Access <sup>e</sup>	544 linear miles x 100 feet wide	6,594	544 linear miles x 25 feet wide	1,648
Maintenance Road <sup>f</sup>	374 linear miles x 25 feet wide	1,133	374 linear miles x 25 feet wide	1,133
<b>Total</b>	-	<b>17,309</b>	-	<b>4,492</b>

*Table Acronym(s):* GLWP – Greenlink West Transmission Project; kV – Kilovolt

*Table Note(s):* <sup>a</sup>Numbers have been rounded for presentation purposes. As such, totals may not reflect the sum of the addends.

<sup>b</sup>Temporary disturbance areas would be reclaimed.

<sup>c</sup>Structure pad falls within the structure work area.

<sup>d</sup>Even though the permanent physical ground disturbance for the structures would be limited to the foundations, the operational footprint maintained by the Proponent for the permanent 525-kV structure pads would be 200 feet x 200 feet in desert tortoise habitat and 100 feet x 100 feet in areas outside of desert tortoise habitat. Includes only new and existing unpaved roads that may require improvements.

<sup>e</sup>Access road width is approximate.

<sup>f</sup>Maintenance roads for distribution lines are not included in disturbance calculations.

three phases per circuit with two conductors per phase and would also include one extra-high-strength steel shield wire and one OPGW fiber optic shield wire for control and operation of the transmission system. The 345-kV Fort Churchill-Comstock Meadows #2 Line would include the placement of approximately 145 tangent structures and 22 dead-end and angle structures configured similar to the 345-kV Fort Churchill-Comstock Meadows #1 Line (refer to Figure 2-1). The 345-kV Fort Churchill-Mira Loma Line would include the placement of approximately 194 tangent structures and 28 dead-end and angle structures configured similar to the Fort Churchill-Comstock Meadows #1 Line (refer to Figure 2-1).

Distribution lines would be constructed to the Amargosa and Esmeralda substations, microwave radio facilities, and amplifier sites. The distribution supply line voltage would be 25-kV or 12-kV and carried on wood or steel poles. The distribution line locations and routing may be modified during the final design process. Temporary work areas would be needed to accommodate construction equipment and activities in locations where new or rebuilt distribution lines would be constructed.

### **Guard Structures**

During wire-pulling activities, temporary guard structures would be erected during construction at road, railroad, and electric line crossings to protect these features and the public in the event that the wire falls. Guard structures would consist of construction equipment with special attachments or wood H-frame structures placed on either side of the crossing to prevent ground wires, conductors, or equipment from falling on underlying facilities and disrupting road/rail traffic and electric lines. Guard structures are anticipated to be placed at road, railroad, and transmission line crossings and could be used around perennial waters or riparian areas. The need for guard structures at distribution line crossings would be determined once the route alignments have been field-verified. Guard structures may not be required for



narrow roads. In such cases, other safety measures such as barriers, flaggers, or other traffic controls would be used. Following stringing and tensioning of all ground wires and conductors, the guard structures would be removed, and the area restored.

### **Substations**

The GLWP would include construction and/or improvements at seven substation locations; three new substations (Amargosa, Esmeralda, and Fort Churchill), one expanded substation (Northwest), and three substations with improvements within the existing property boundaries (Harry Allen, Comstock Meadows, and Mira Loma) (refer to Figure 2-3). These substations would include fiber optic cable and microwave antennae towers for control and operation of the transmission system. The new Fort Churchill Substation would be constructed approximately 1,600 feet west of the existing Fort Churchill Generating Station and within an approximately 360-acre area in Lyon County. All substation and transmission line realignment work at the new Fort Churchill Substation would be on private or Proponent-owned land.

The new Esmeralda Substation would be constructed approximately 32 miles west of Tonopah in Nye County and would occupy approximately 109 acres. The new Amargosa Substation would be constructed approximately 24 miles southeast of Beatty in Nye County and would occupy approximately 110 acres. These two substations would be on BLM-administered lands. In addition to the substation footprints themselves, electrical lines and access roads would be needed for the respective substations.

The existing Northwest Substation in Clark County would be expanded west of the existing substation and require an additional area of approximately 22 acres. Substation expansion and transmission line work would be on both BLM-administered land and private property. Line terminal equipment would be installed at the existing Harry Allen Substation in Clark County. At the Harry Allen Substation, all work would occur within the existing substation boundaries (i.e., the extents of the substation footprint would not change). Transmission line work into the Harry Allen Substation would occur on both BLM-administered land and private property. Line terminal equipment would be installed at the existing Comstock Meadows Substation and the existing Mira Loma Substation in Storey and Washoe counties, respectively. The work at both substations would occur within the existing substations' boundaries. Transmission line work into both substations would occur on BLM-administered land and private property.

There would be industrial-type lighting at the expanded and new substations. Generally, interior lights would be off at all times unless an employee is in the substation. Permanent outdoor lighting would be limited to areas required for O&M, safety, and security and would be anti-glare, shielded, and directed downward to the extent possible. Lighting techniques would include directional fixtures that prevent lights from shining into the sky, screening lights, using timers and motion detectors so that lights are only on when necessary, and systems that minimize lighting to meet only functional requirements. Highly directional, light-emitting diode fixtures (or other fixtures that meet the criteria specified) would be used where practical. Switches or photocells would be used as appropriate on outdoor lighting to allow use of lighting only when needed. Where applicable, structures would be lit both day and night in accordance with Federal Aviation Administration (FAA) standards.

### **Telecommunications**

As previously described, the Proponent would install OPGW as a component of the 525-kV and 345-kV transmission lines for control and operation of the transmission system. A mix of telecommunications systems would be used to provide secure and reliable communications for the control system real-time

requirements, protection, and day-to-day O&M needs. Fiber optic cable would also be installed at each proposed substation, on the distribution lines, and to connect to the amplifier sites.

### **Microwave Radio Facilities**

In addition to OPGW, the Proponent would construct new microwave radio facilities to provide a diverse and redundant telecommunications path pursuant to NERC reliability standards (NERC 2022). New microwave radio facilities would be added at Amargosa and the substations Amargosa, Esmeralda, and Fort Churchill. Microwave radio facilities would also be added with existing microwave facilities at Angel Peak, TV Hill, Pilot Peak, Montezuma, Sawtooth, Spotted Range, and Gold Mountain (refer to Figure 2-3). The microwave radio facilities would also require electric distribution service and installation of a backup generator.

Where required by the FAA, highly directional, high-pressure sodium vapor fixtures (or other fixtures that meet the criteria specified) would be used where practical. To limit lighting use, switches or photocells would be used on outdoor lighting as appropriate. Lighting would include directional fixtures that prevent lights from shining into the sky, screening lights, timers and motion detectors, and systems that minimize lighting to only meet functional requirements.

### **Optical Amplifier Sites**

The optical data signal that travels through the fiber optic cable degrades with distance and would require installing signal-boosting equipment referred to as amplifier sites. The amplifier sites would be located within existing or new substation sites and along the transmission line, which would be within the permanent ROW. There would be a total of six optical amplifier sites within substations and four within the transmission line ROW (refer to Figure 2-3). The GLWP amplifier sites would also require electric distribution service, installation of a backup generator, and connection with fiber optic cable. The fiber optic cable connected to the four amplifier sites within the transmission line permanent ROW would be constructed underground with an eight-foot-wide construction ROW maintained as permanent. The fiber optic cable would be connected from a splice box located near the bottom of the nearest transmission structure to the amplifier site. The four fiber optic cables would vary in length, but total approximately 0.4 miles and approximately 0.3 acres.

### **Access and Maintenance Roads**

Roads enable access to the ROW and structure sites for construction and long-term maintenance of the transmission lines as well as decommissioning activities. Existing roads would be the primary means to access the GLWP. In some cases, existing improved and unimproved dirt roads may require widening or other improvements to accommodate equipment. Three types of existing roads would be used for access as described below.

- Paved roads: Paved roads are expected to be accessible under any conditions by all construction, O&M, and decommissioning equipment and are not expected to require either maintenance or improvement.
- Unpaved (dirt/gravel) roads that do not require improvements: These roads are graded, used frequently, and should be accessible under most weather conditions. Unpaved roads would not need improvement for construction and O&M access, but they would be maintained (typically light grading) to keep the road in acceptable condition for construction, O&M, and other authorized uses. Maintenance activity would not increase the existing road profile nor increase surface disturbance.

- Unpaved roads that may require improvements: These would include minimally improved and unimproved dirt roads and two-track roads that need improvements to safely accommodate construction, O&M, and decommissioning equipment.

The normal width on access roads requiring improvement would be approximately 25 feet. Improvements may include vegetation removal; curve widening; roadbed widening; surface improvement by blading and moving rocks to either side; and installing natural drainage crossings, water bars, and other erosion-protection measures. In addition, a 75-foot-wide turning radius would be added at roadway intersections and turnout locations as necessary to accommodate oversized equipment and vehicles.

The Proponent would construct new access roads, where needed, from existing roads and/or between adjacent structure sites in flat areas with low vegetation. The new access roads would be graded for the equipment needed to construct foundations, erect structures, and conduct stringing. The new access roads would average 25-foot-wide.

In addition to access roads to the ROW, a maintenance road would also be required along the entire length of the transmission line for O&M and patrol activities. The 525-kV and 345-kV transmission lines would need approximately 276 miles and approximately 98 miles of maintenance roads, respectively. The maintenance roads would average 25 feet wide. Distribution lines would also need maintenance roads, and these would average 18 feet wide.

All new and improved access and maintenance roads would be maintained as permanent. As summarized in Table 2-1, new and existing unpaved access roads that may require improvements would permanently disturb a total area of approximately 1,648 acres. The maintenance roads would permanently disturb a total area of approximately 1,133 acres.

### **Construction Yards**

Construction yards are temporary work areas that would be required for materials and equipment storage and staging for construction activities. The construction yards would serve as field offices, reporting locations for construction crews, parking space for vehicles and equipment, storage of construction materials, and structure fabrication and assembly. Some of these yards would also include concrete batch plants and helicopter fly yards.

Construction yards would conceptually be located at approximately 50-mile intervals along the transmission line route. The Proponent's preference would be to select these temporary work areas on private lands and at least one in each county crossed by the route, location along or near paved roads, close as practicable to railroad sidings, and areas approximately 25 acres in size. It is anticipated that the Proponent would receive materials at the main construction yards to be turned over to the contractor for hauling to other construction yards.

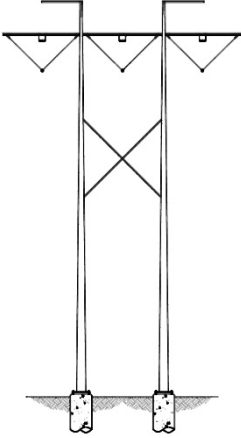
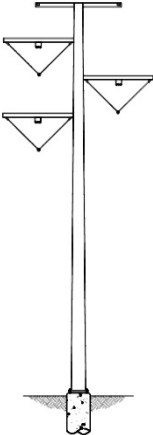
#### **2.1.4 GLWP Construction**

The construction activities are described in the GLWP Preliminary POD (NV Energy 2023) and would be refined and finalized in the Proponent's subsequent Construction, Operations, and Maintenance (COM) Plan (pending, NV Energy n.d.). The COM Plan provides direction to the Proponent's construction personnel, construction contractors and crews, compliance inspection contractor, environmental monitors, and agency personnel regarding specifications for construction and O&M activities. The federal ROW agencies would monitor the construction and would likely use a compliance inspection contractor to ensure that the measures required by the ROD are implemented and to achieve the desired resource protection.

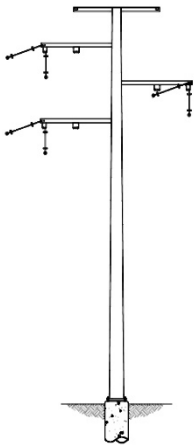
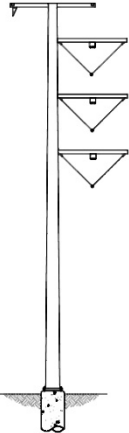
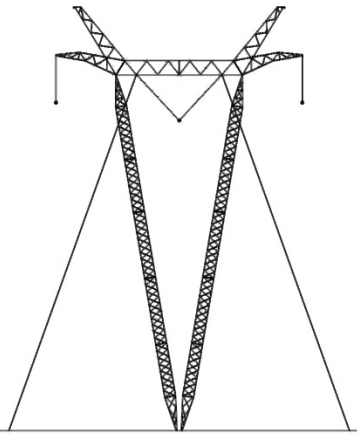
The Proponent would be ready to mobilize upon receiving the notice to proceed from the federal ROW agencies. Final engineering surveys determine the exact locations of towers, access roads, and other project features before the start of construction. The overall construction of the GLWP components would take approximately three years, depending on a variety of factors such as weather, seasonal restrictions, and availability of labor and materials.

In order to accommodate construction activities, the Proponent would require up to a 600-foot-wide temporary ROW (1,200 feet in areas with steep terrain) for the proposed 525-kV and 345-kV transmission lines, except on the TUSK. In order to accommodate construction activities, a 55-foot by 250-foot workspace for each structure would be disturbed within the TUSK. There would be no construction yards, wire-pulling and tensioning sites (referred to as pull sites), or access roads within the TUSK. For the remainder of the GLWP construction activities outside of the TUSK, temporary work pads would be needed for each structure and would be sized based on the structure type (Table 2-2). As summarized in Table 2-1, the transmission structure work areas would temporarily disturb approximately 2,608 acres.

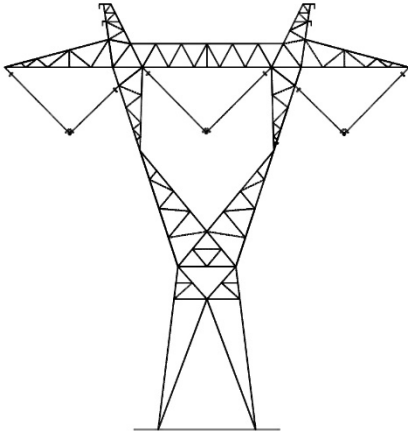
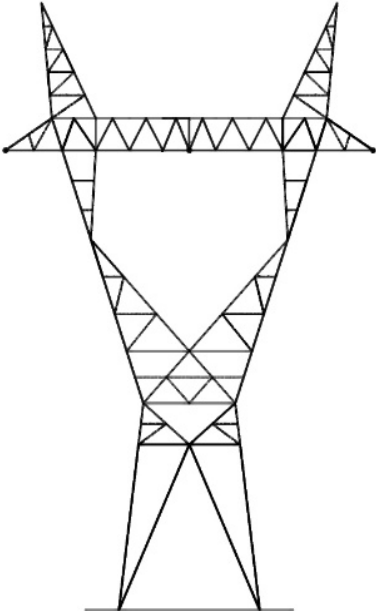
**Table 2-2. Proposed Transmission/Distribution Line Characteristics**

Structure Type	Description
525-kV steel pole H-frame tangent	
	<p>Typical Height: 100 feet to 180 feet            Typical Distance Between Structures: 1,140 feet            Minimum Ground Clearance: 35 feet            Construction Footprint Requirements: 200 feet x 250 feet            Operations Footprint Requirements: 5- to 10-foot diameter</p>
525-kV steel delta monopole tangent	
	<p>Typical Height: 100 feet to 180 feet            Typical Distance Between Structures: 1,200 feet            Minimum Ground Clearance: 35 feet            Construction Footprint Requirements: 200 feet x 250 feet            Operations Footprint Requirements: 6- to 12-foot diameter</p>

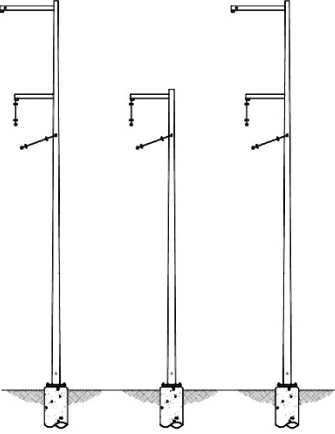
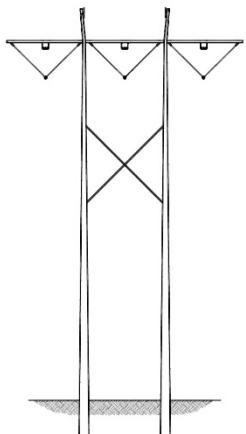
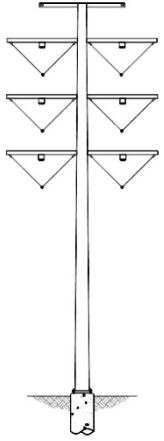
**Table 2-2. Proposed Transmission/Distribution Line Characteristics  
(continued)**

Structure Type	Description
<p><b>525-kV steel monopole delta dead-end/angle</b></p> 	<p>Typical Height: 100 feet to 180 feet            Typical Distance Between Structures: 1,200 feet            Minimum Ground Clearance: 35 feet            Construction Footprint Requirements: 200 feet x 400 feet            Operations Footprint Requirements: 6- to 12-foot diameter</p>
<p><b>525-kV steel vertical monopole tangent</b></p> 	<p>Typical Height: 120 feet to 180 feet            Typical Distance Between Structures: 1,200 feet            Minimum Ground Clearance: 35 feet            Construction Footprint Requirements: 200 feet x 250 feet            Operations Footprint Requirements: 6- to 12-foot diameter</p>
<p><b>525-kV steel lattice guyed tangent</b></p> 	<p>Typical Height: 105 feet to 160 feet            Typical Distance Between Structures: 1,520 feet            Minimum Ground Clearance: 35 feet            Construction Footprint Requirements: 200 feet x 250 feet            Operations Footprint Requirements: 140 feet x 140 feet</p>

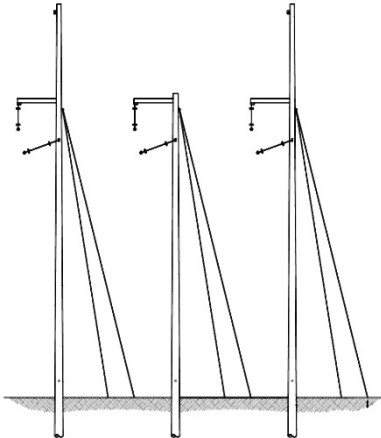
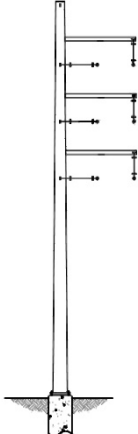
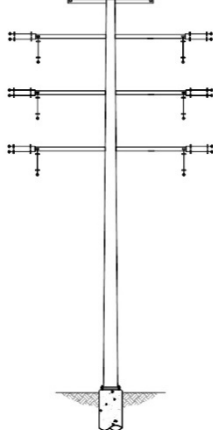
**Table 2-2. Proposed Transmission/Distribution Line Characteristics  
(continued)**

Structure Type	Description
<p>525-kV steel lattice self-supporting tangent</p> 	<p>Typical Height: 100 feet to 150 feet                      Typical Distance Between Structures: 1,200 feet                      Minimum Ground Clearance: 35 feet                      Construction Footprint Requirements: 200 feet x 250 feet                      Operations Footprint Requirements: 55 feet x 55 feet</p>
<p>525-kV steel lattice self-supporting dead-end/angle</p> 	<p>Typical Height: 100 feet to 150 feet                      Typical Distance Between Structures: 1,200 feet                      Minimum Ground Clearance: 35 feet                      Construction Footprint Requirements: 200 feet by 400 feet                      Operations Footprint Requirements: 55 feet x 55 feet</p>

**Table 2-2. Proposed Transmission/Distribution Line Characteristics  
(continued)**


Structure Type	Description
<p><b>525-kV steel three-pole dead-end/angle</b></p> 	<p>Typical Height: 100 feet to 180 feet            Typical Distance Between Structures: N/A            Minimum Ground Clearance: 35 feet            Construction Footprint Requirements: 200 feet x 400 feet            Operations Footprint Requirements: 6- to 12-foot diameter</p>
<p><b>345-kV steel pole H-frame tangent</b></p> 	<p>Typical Height: 75 feet to 180 feet            Typical Distance Between Structures: 1,200 feet            Minimum Ground Clearance: 28 feet            Construction Footprint Requirements: 160 feet x 250 feet            Operations Footprint Requirements: 2- to 4-foot diameter</p>
<p><b>345-kV double-circuit steel vertical monopole tangent</b></p> 	<p>Typical Height: 110 feet to 160 feet            Typical Distance Between Structures: 1,140 feet            Minimum Ground Clearance: 28 feet            Construction Footprint Requirements: 160 feet x 250 feet            Operations Footprint Requirements: 4- to 8-foot diameter</p>

**Table 2-2. Proposed Transmission/Distribution Line Characteristics  
(continued)**

Structure Type	Description
<p><b>345-kV steel three-pole guyed dead-end/angle</b></p> 	<p>Typical Height: 75 feet to 180 feet                      Typical Distance Between Structures: N/A                      Minimum Ground Clearance: 28 feet                      Construction Footprint Requirements: 160 feet x 400 feet                      Operations Footprint Requirements: 2- to 6-foot diameter</p>
<p><b>345-kV steel vertical monopole guyed dead-end/angle</b></p> 	<p>Typical Height: 110 to 160 feet                      Typical Distance Between Structures: N/A                      Minimum Ground Clearance: 28 feet                      Construction Footprint Requirements: 160 feet x 400 feet                      Operations Footprint Requirements: 5- to 10-foot diameter</p>
<p><b>345-kV double-circuit steel vertical monopole dead-end/angle</b></p> 	<p>Typical Height: 120 to 165 feet                      Typical Distance Between Structures: N/A                      Minimum Ground Clearance: 28 feet                      Construction Footprint Requirements: 160 feet x 400 feet                      Operations Footprint Requirements: 6- to 12-foot diameter</p>



**Table 2-2. Proposed Transmission/Distribution Line Characteristics  
(continued)**

Structure Type	Description
<p>Distribution pole</p> 	<p>Typical Height: 45 to 50 feet                      Typical Distance Between Structures: 230 feet                      Minimum Ground Clearance: 22 feet                      Construction Footprint Requirements: 100 feet x 100 feet                      Operations Footprint Requirements: 50 feet x 50 feet</p>

*Table Acronym(s):* kV – kilovolt; N/A – Not applicable  
*Table Source(s):* NV Energy 2023

Approximately 342 pull sites would be necessary to install the conductor, shield wire, and fiber optic line. Mid-span pull sites work areas would measure 200 feet by 600 feet for the 525-kV transmission lines and 160 feet by 600 feet for the 345-kV transmission lines. Pull sites at points of intersection and dead-ends would require a 700-foot radial work area centered on the structure. Pull sites would temporarily disturb a total area of approximately 4,662 acres.

Temporary helicopter fly yards and refueling sites would also be needed for helicopter transport of structures, personnel, and materials. An estimated 84 helicopter yards between 10 acres and 20 acres each have been identified approximately every five miles along the transmission line.

A description on construction of the transmission line structures, substations, telecommunication facilities, and fiber optic line is provided in the GLWP Preliminary POD in Appendix B (NV Energy 2023). Information on site cleanup, demobilization, and reclamation is also included in Appendix B.

**2.1.5 Construction Workforce Numbers, Vehicles, Equipment, and Timeframes**

Construction of the GLWP would require at least 50 workers to 75 workers at any given time, with an estimated maximum of 250 workers during peak construction. Depending on the weather, construction crews would work 8- to 12-hour workdays, six days per week (personal communication Seiler 2024).

Construction-phase vehicles and heavy equipment would be required for construction of the GLWP (Table 2-3). The equipment would be delivered to the site by flatbed combination truck and/or trailer and would generally remain on site in construction yards until construction is finished in the portion of the transmission line serviced by a given yard(s). Locally available gravel, rock, and sand would be transported to the GLWP site.

**Table 2-3. Typical Construction Equipment and Use**

<b>Equipment</b>	<b>Use</b>
¾-ton and 1-ton pickup trucks	Transport construction personnel
Aerial bucket trucks	Access poles, string conductor, and other uses
Air compressors	Operate air tools
Air tampers	Compact soil around structure foundations
Bulldozer	Grade access roads and pole sites and reclamation
Cable reel trainers	Transport cable reels and feed cables into conduit
Compactor	Construct access roads
Drill rig with augers	Excavate and install fences
Dump truck	Haul excavated materials and import backfill
Fuel and equipment fluid truck	Refuel and maintain vehicles
Helicopter	Transport equipment and personnel, erect structures, pull conductor
Large mobile cranes (75 tons)	Erect structures
Mechanic truck	Service and repair equipment
Puller and tensioner	Pull conductor and wire
Rigging truck	Haul tools and equipment
Road grader	Construct, maintain, and upgrade roads
Semi tractor-trailers	Haul structures and equipment
Shop vans	Store tools
Small mobile cranes (12 tons)	Load and unload materials
Splice trailer	Store splicing supplies and air condition manholes
Take-up trailers	Install conductor
Transport	Haul poles and equipment
Truck-mounted digger or backhoe	Excavate
Two-ton flatbed trucks and flatbed boom trucks	Haul and unload materials
Water truck	Suppress dust and fire
Winch truck	Install and pull line and conductors into position

*Table Source(s): NV Energy 2023*

### **2.1.6 Operations and Maintenance**

Once the new facilities are operational, the Proponent’s O&M personnel would conduct regular inspections of the lines and substations. In addition to visual review of the line along the access roads, annual line inspections would be conducted by helicopter, all-terrain vehicles, or line trucks. Aside from annual inspections, the Proponent would also need to access the line when structure maintenance is required or if there is an emergency. Under these circumstances, the line would be accessed by line trucks using existing access roads, by helicopter, or other means necessary.

Approximately every 10 years, the Proponent would conduct structure-climbing inspections. These inspections consist of accessing the structures using four-wheel drive vehicles on existing access roads and maintenance roads. The Proponent’s field inspectors would climb the structures to examine the hardware, structure condition, and insulators.

### **2.1.7 Decommissioning**

Typically, transmission lines that have been regularly maintained continue to provide service longer than the projected service life based on electrical demand, maintenance, and the expected life of the GLWP facilities and major components. At some period in the future, the GLWP may no longer be cost-effective to continue operating. At that time, the GLWP would be decommissioned and all GLWP facilities would be dismantled and removed in accordance with applicable local, state, Tribal, and federal laws.

In the event that the GLWP is decommissioned, a Reclamation Plan and a Decommissioning Plan would need to be filed and approved by the federal ROW agencies before terminating the ROW. Access routes and other sites disturbed during decommissioning would be reclaimed and revegetated in accordance with a decommissioning plan approved by the federal ROW agencies. It is assumed that the decommissioning activities would occur within the permanent ROW area. Appropriate NEPA review would be required at that time, if needed.

### 2.1.8 Proposed Environmental Management Measures

To reduce impacts to resources from the GLWP, the Proponent has committed to Environmental Protection Measures (EPMs), which are also referred to as project design features (GLWP Preliminary POD in Appendix B) (NV Energy 2023). These measures, along with relevant Best Management Practices (BMPs), Standard Operating Procedures (SOPs), Interagency Operating Procedures (IOPs)<sup>4</sup>, conservation and prevention measures, and applicable requirements from the BLM’s applicable RMPs and manuals are considered in the impact analysis for each resource/use. In this Final EIS/Proposed RMPA, the term Environmental Management Measures (EMMs) refers collectively to the EPMs and these other relevant measures noted. The EMMs are listed in Appendix C. Any mitigation measures identified in the Final EIS/Proposed RMPA are in addition to the EMMs.

## 2.2 Transmission Line Route Group Action Alternatives

Potential transmission line route alternatives were grouped into smaller geographic areas to allow for localized comparisons among the various line routes. In order to compare the Action Alternatives, including the Proposed Action, within the same transmission line route group, common start and end points for each group were determined. The Action Alternatives identified by the Cooperating Agencies, the public, the Proponent, and the BLM are focused on nine geographic areas of transmission line route adjustments (Table 2-4 and Figure 2-4). The Action Alternatives, including the comparable segment of the Proposed Action, are described going from the Harry Allen Substation near North Las Vegas to the Mira Loma and Comstock Meadow substations near Reno.

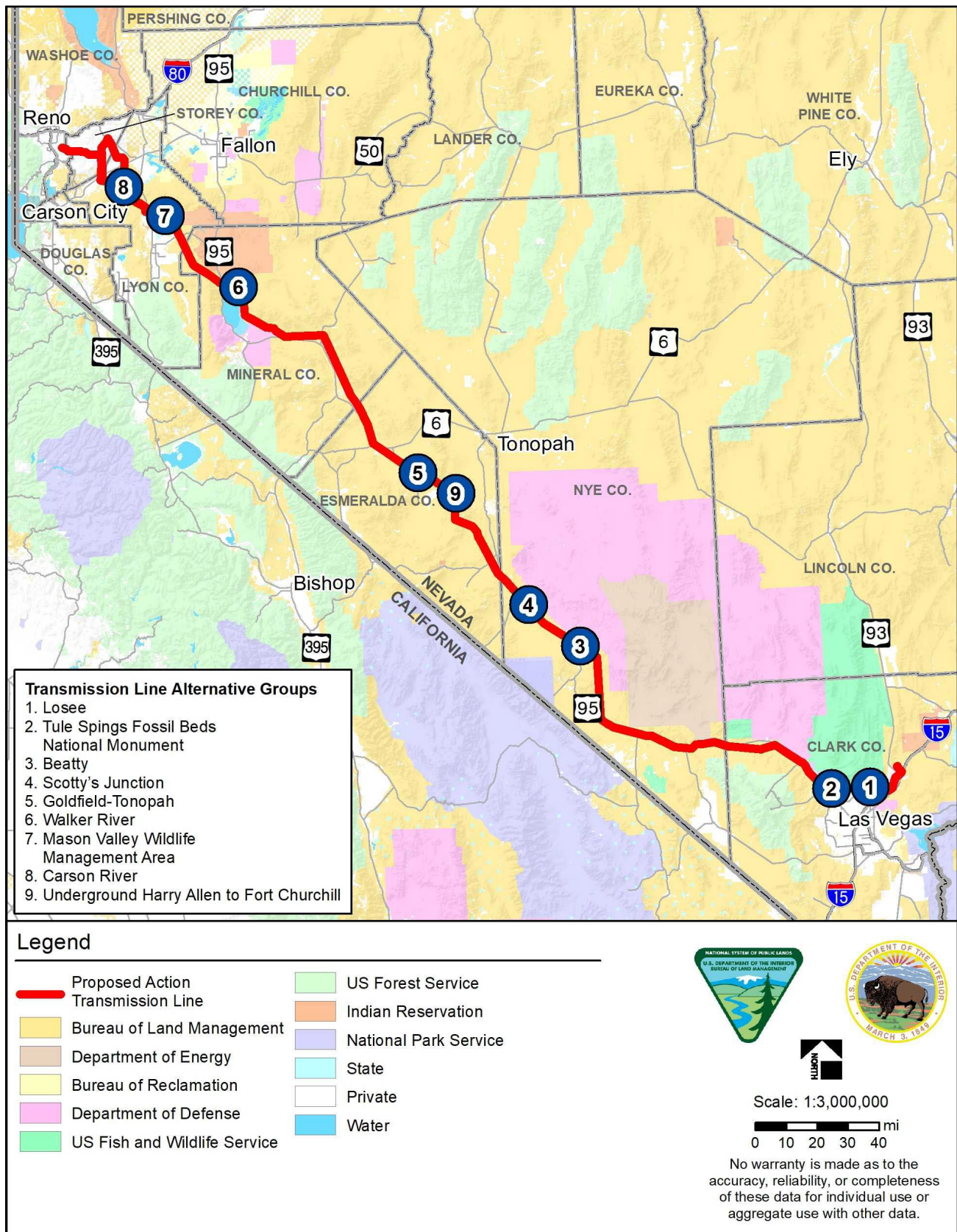
**Table 2-4. Transmission Line Route Group Alternatives Considered**

<b>Transmission Line Route Group</b>	<b>Alternative(s)</b>
Losee	Alternative A
TUSK	Alternatives A, B, D, E, F, G, and Initial Proposed Action <sup>a</sup>
Beatty	Alternatives A, B, C, D, E, F, G, H, I, J, K, and L
Scotty’s Junction	Alternatives A and B
Goldfield-Tonopah	Alternatives A, B, C, and D
Walker River	Alternative A
Mason Valley WMA	Alternatives A, B, and C
Carson River	Alternatives A, B, and C
Underground Harry Allen to Fort Churchill	Alternative A

*Table Acronym(s):* TUSK – Tule Springs Fossil Beds National Monument; WMA – Wildlife Management Area

*Table Note(s):* <sup>a</sup>TUSK Initial Proposed Action Transmission Alternative was identified as the Proposed Action in the Proponent’s Preliminary POD provided with the submittal of the GLWP SF-299. In subsequent revisions to the GLWP Preliminary POD, the Proponent changed their Proposed Action to TUSK Transmission Alternative C (NV Energy 2023).

<sup>4</sup> The IOPs were adopted to apply for project sited with designated WWEC in the January 2009 Approved Resource Management Plan Amendments/Record of Decision for Designation of Energy Corridors on Bureau of Land Management-Administered Lands in the 11 Western States prepared by the DOE and the BLM for the DOI.



**Figure 2-4. Transmission Line Route Group Locations**

### **2.2.1 Losee Transmission Line Route Group Alternatives**

The Losee Transmission Line Route Group Alternatives consider two different routes between North Lamb Boulevard and the Losee Road alignment extension. Near the intersection of Grand Teton Drive and Lamb Boulevard, the Proposed Action would turn north for approximately two miles along North Lamb Boulevard adjacent to the Nellis Air Force Base Small Arms Range, and then go west at the boundary of the Desert National Wildlife Refuge (Desert NWR) (Figure 2-5). Near the intersection of Grand Teton Drive and Lamb Boulevard, the Losee Transmission Alternative A would travel along the extension of Grand Teton Drive for an additional two miles before turning north on Losee Road and reconnecting to the Proposed Action.

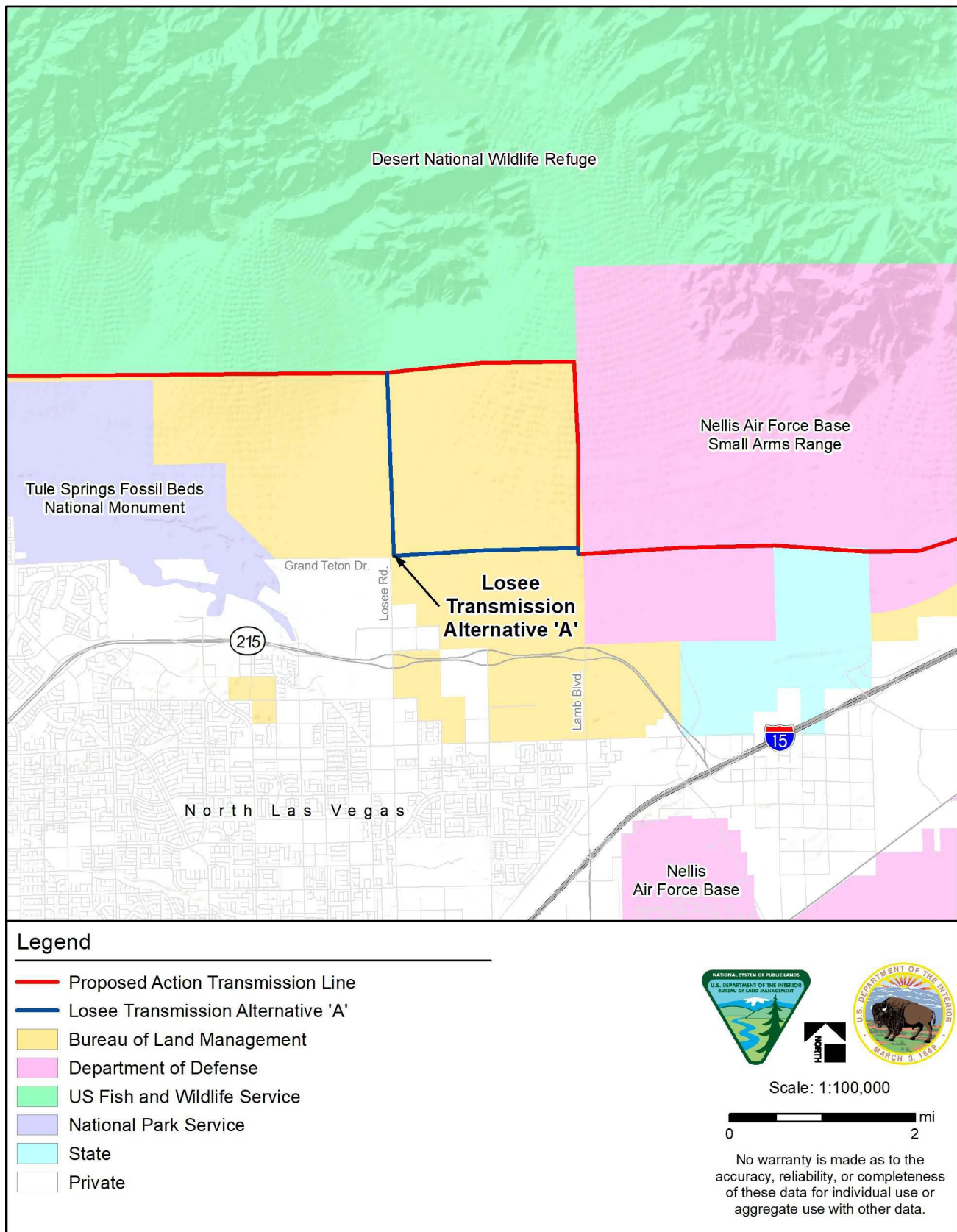
### **2.2.2 TUSK Transmission Line Route Group Alternatives**

The TUSK Transmission Line Route Group Alternatives include alternatives within the TUSK and alternatives that would avoid the TUSK. TUSK Transmission Alternative A, the initial Proposed Action, TUSK Transmission Alternative B, and the current Proposed Action would involve different structure and location options within the TUSK along the TUSK boundary adjacent to Moccasin Road (extension of El Capitan Way to the east for approximately 1.5 miles).

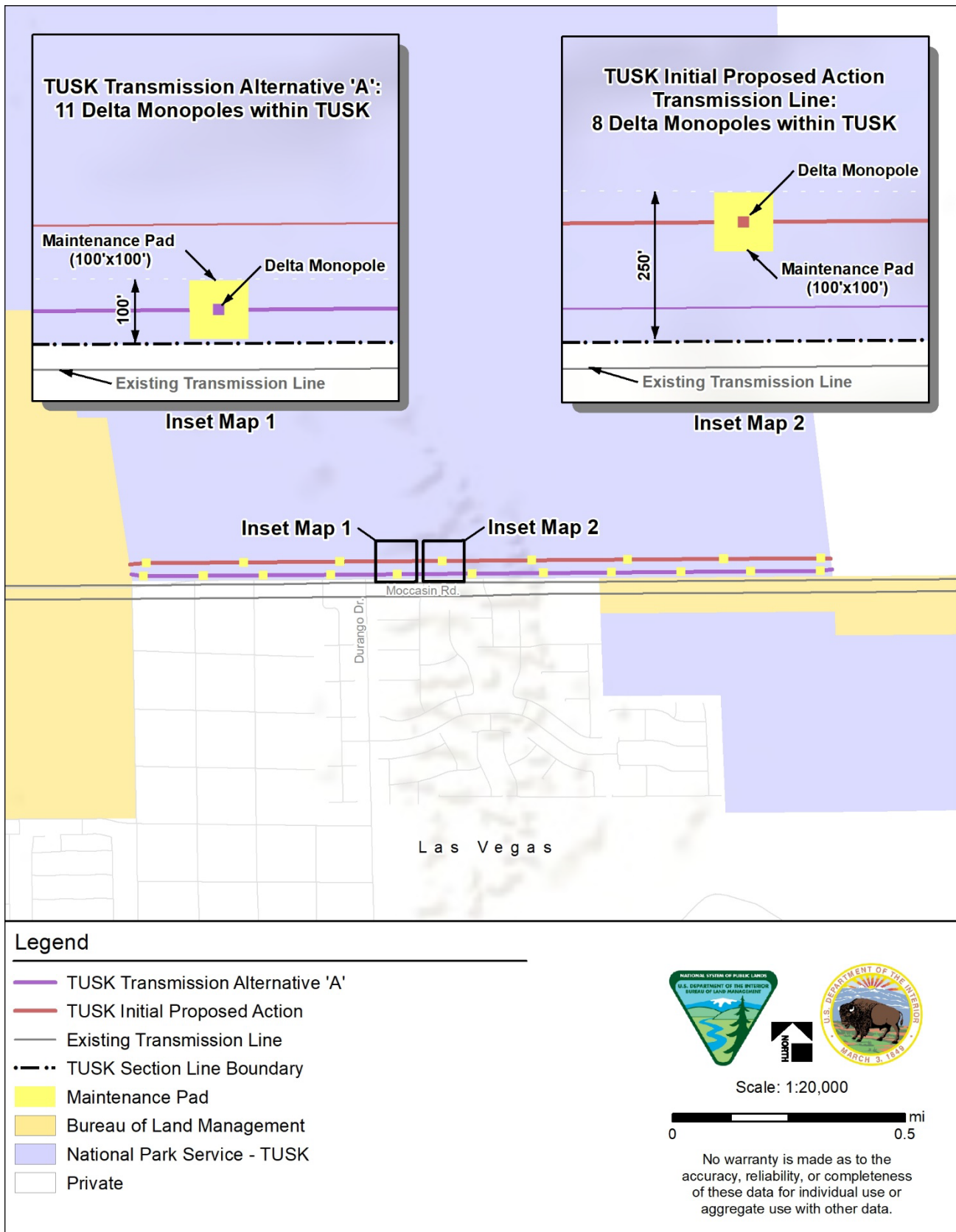
TUSK Transmission Alternative A would consist of 11 delta monopoles, centered on a 100-foot by 100-foot maintenance pad (refer to Figure 2-6). The initial Proposed Action would consist of eight delta monopoles, centered on a 100-foot-by 100-foot maintenance pad (refer to Figure 2-6). The delta monopoles would be approximately 120-foot-tall. The TUSK Transmission Alternative B would consist of six guyed-V wire-frame towers centered on a 200-foot by 200-foot maintenance pad (refer to Figure 2-7). These wire-frame towers would be approximately 150-foot-tall. The current Proposed Action (previously referred to as TUSK Alternative Transmission Alternative C) would consist of 11 vertical monopoles, centered on a 100-foot by 100-foot maintenance pad (refer to Figure 2-7). These vertical monopoles would be approximately 180-foot-tall. Refer to Figure 2-6 and Figure 2-7 for the relative distances of the structures and maintenance pads for each of the above-referenced alternatives within the TUSK. The foundation excavation would consist of one drilled pier per structure location with an estimated diameter of 6 to 12 feet and a depth estimate of 25 to 35 feet, depending on the structure type. The amount of permanent ROW within the TUSK that would be required for each of these four transmission alternatives would range from approximately 19.8 acres for the current Proposed Action, approximately 28.2 acres for TUSK Transmission Alternative A, to approximately 36.4 acres for both the initial Proposed Action and the TUSK Transmission Alternative B.

TUSK Transmission Alternative D would occur in the same location along Moccasin Road but would be outside of the TUSK, approximately 195 feet south of the TUSK boundary. This alternative would double-circuit the GLWP 525-kV with the existing Lenzie-Northwest/Harry Allen-Northwest 525-kV line (refer to Figure 2-8). Installing the double circuit extra-high voltage (EHV) would require replacing the existing 150-foot-tall structures with approximately 190-foot-tall structures.

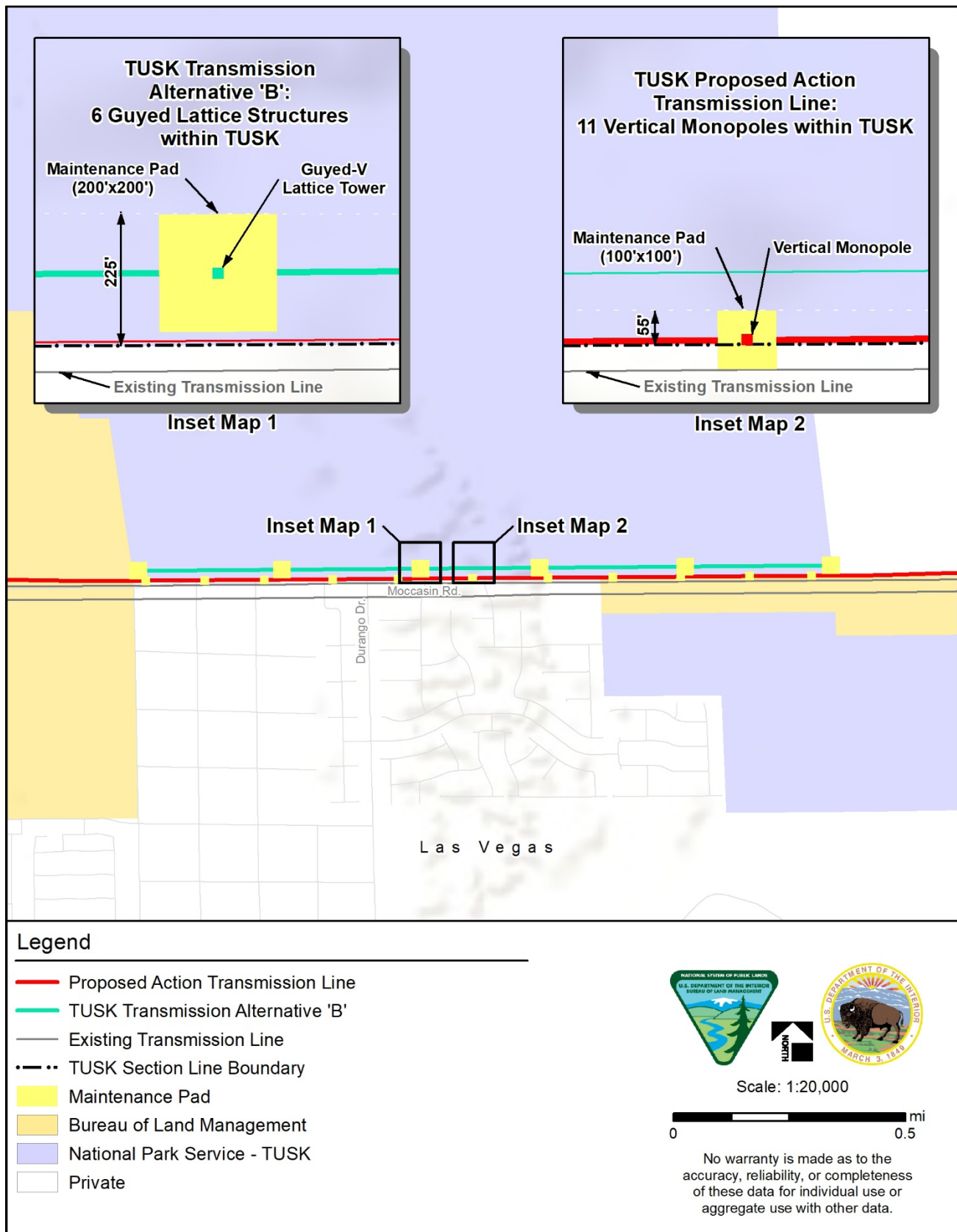
The TUSK Transmission Alternative E would consider the enabling legislation for the TUSK signed by Congress on December 19, 2014 (HR3979-570, PL 112-272; 126 Statute 2248, amended 2014 Section 3092 (a)). This legislation provided for a 400-foot-wide ROW for the construction and maintenance of high-voltage transmission facilities (Section 3092(a)(4)). The legislation noted a map entitled "North Las Vegas Valley Overview," dated November 5, 2013, that showed the electric utility



**Figure 2-5. Losee Transmission Line Route Group Alternatives**

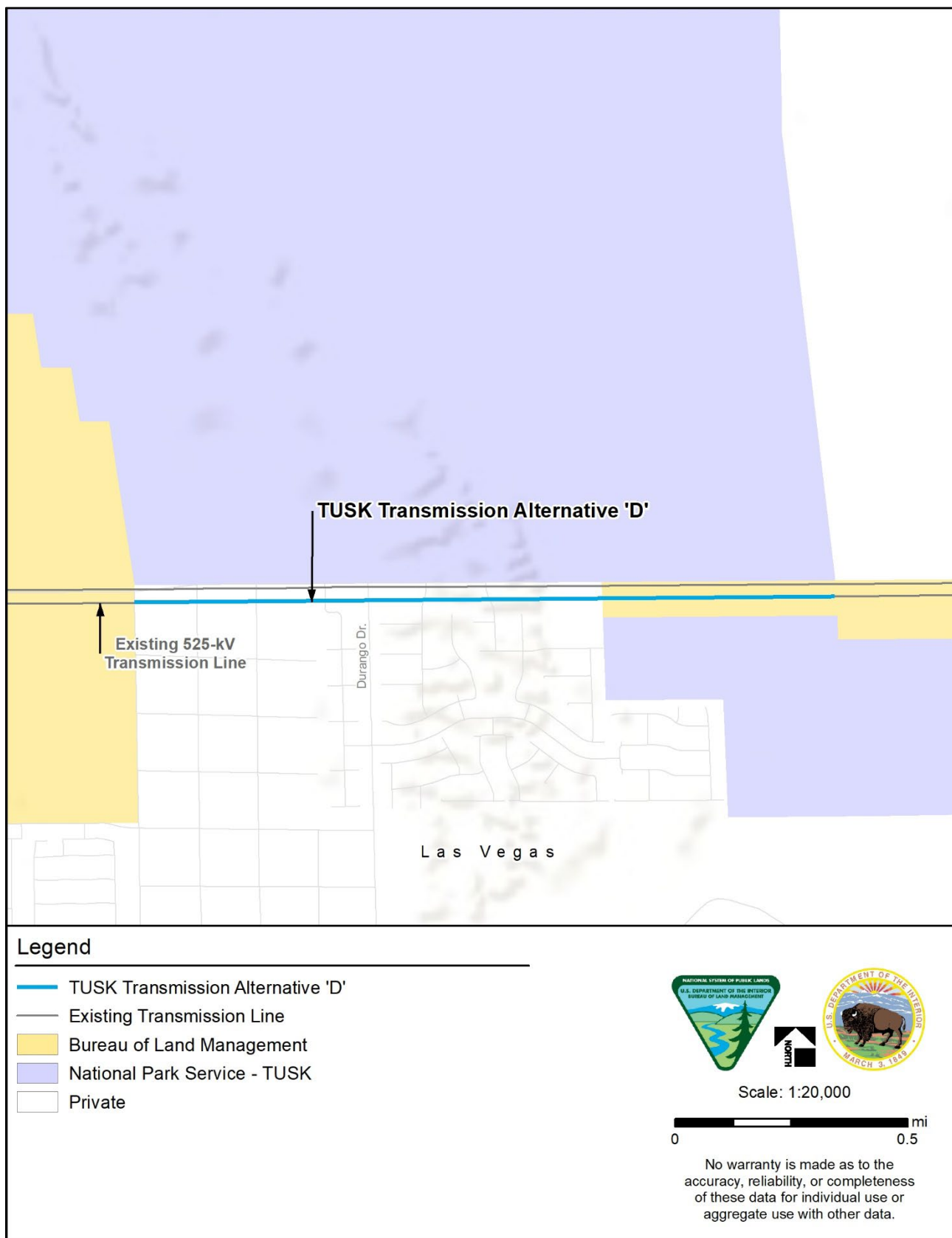


**Figure 2-6. TUSK Transmission Line Route Group Alternatives – TUSK Transmission Alternatives A and Initial Proposed Action**



**Figure 2-7. TUSK Transmission Line Route Group Alternatives – TUSK Transmission Alternatives B and Proposed Action**





**Figure 2-8. TUSK Transmission Line Route Group Alternatives – TUSK Transmission Alternative D**

corridor location. The cited map, however, shows this corridor south of the TUSK outside of the TUSK boundary. TUSK Transmission Alternative E would require further Congressional legislation to resolve the location of the high-voltage transmission corridor with respect to the TUSK (refer to Appendix A for the TUSK enabling legislation and associated North Las Vegas Valley Overview map).

Both TUSK Transmission Alternatives F and G would avoid the TUSK. TUSK Transmission Alternative F would locate the GLWP 525-kV line within the Clark County Route 215 (CC 215) corridor for approximately 12 miles before reaching US 95 (refer to Figure 2-9). From the intersection of the CC 215 and US 95, the TUSK Transmission Alternative F would follow the US 95 corridor for approximately 5 miles until it is reconnected to the Proposed Action just east of the Northwest Substation. The overhead transmission line structures associated with this alternative along CC 215 would be over 200-foot-tall.

TUSK Transmission Alternative G (South of Las Vegas Corridor) would run generally from Harry Allen Substation south through Rainbow Gardens Area of Critical Environmental Concern (ACEC) along the east side of the Las Vegas metropolitan area toward the El Dorado Valley. This alternative would then turn southwest across the Ivanpah ACEC to the community of Jean, Nevada. At Jean, the TUSK Transmission Alternative G would cross Interstate 15 (I-15) and parallel the Nevada-California border. Near the Stump Spring ACEC, TUSK Transmission Alternative G would turn north into Nye County, run between the Spring Mountains National Recreation Area (NRA) and SR 160, and connect to the Proposed Action near the US 95/SR 160 intersection (refer to Figure 2-10).

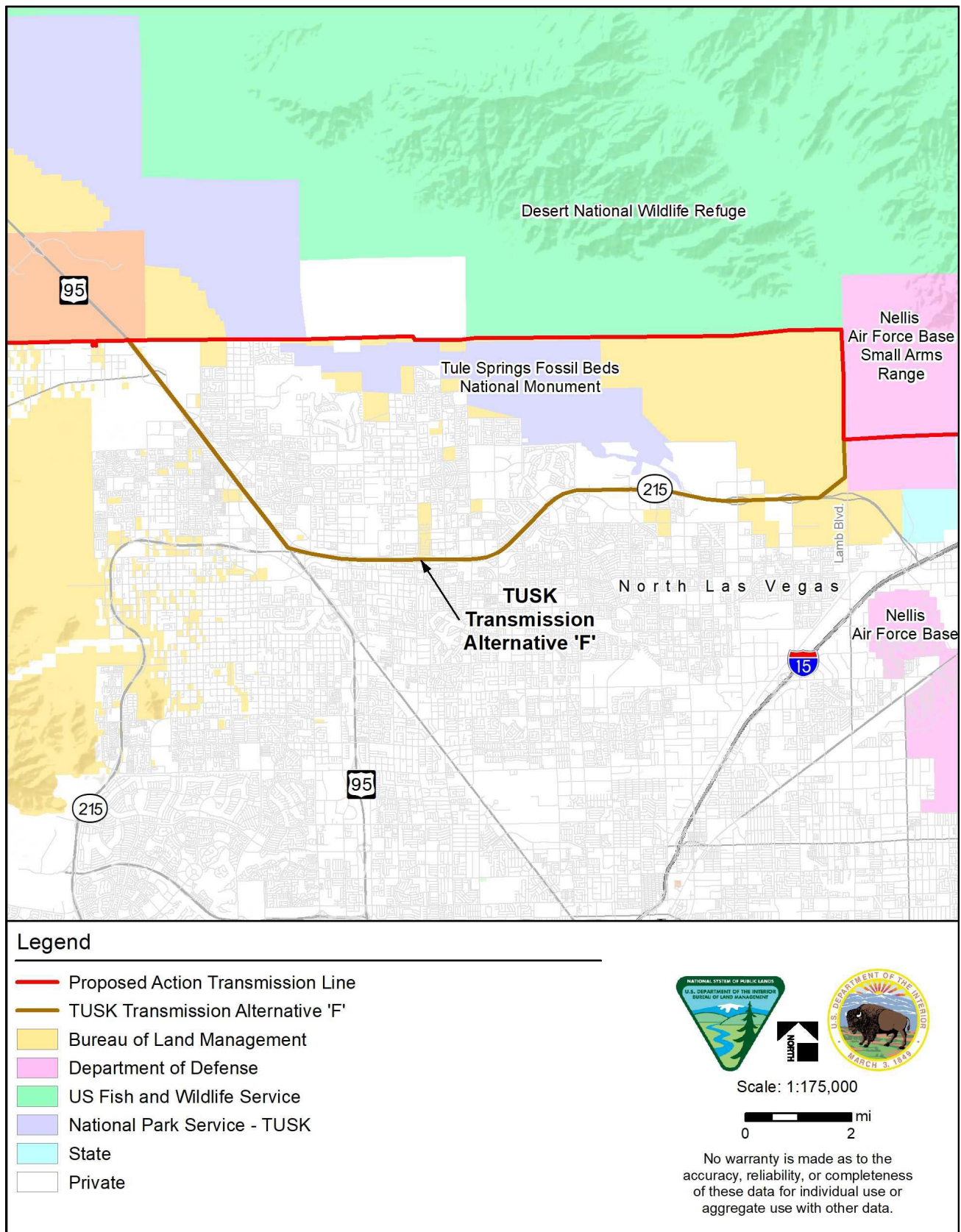
### **2.2.3 Beatty Transmission Line Route Group Alternatives**

The Beatty Transmission Line Route Group Alternatives includes 12 alternatives in addition to the Proposed Action that were identified during public comment and review periods (refer to Figure 2-11). The Proposed Action for this group of transmission alternatives would run north after crossing US 95 through Crater Flat east of Bare Mountain for approximately 20 miles before turning northwest after crossing Beatty Wash for approximately 12 miles. The Proposed Action would then cross The Nature Conservancy's Gary and Lajetta Atwood Preserve (Atwood Preserve)<sup>5</sup> and the Amargosa River where it would intersect US 95 and run parallel to the highway until Scotty's Junction.

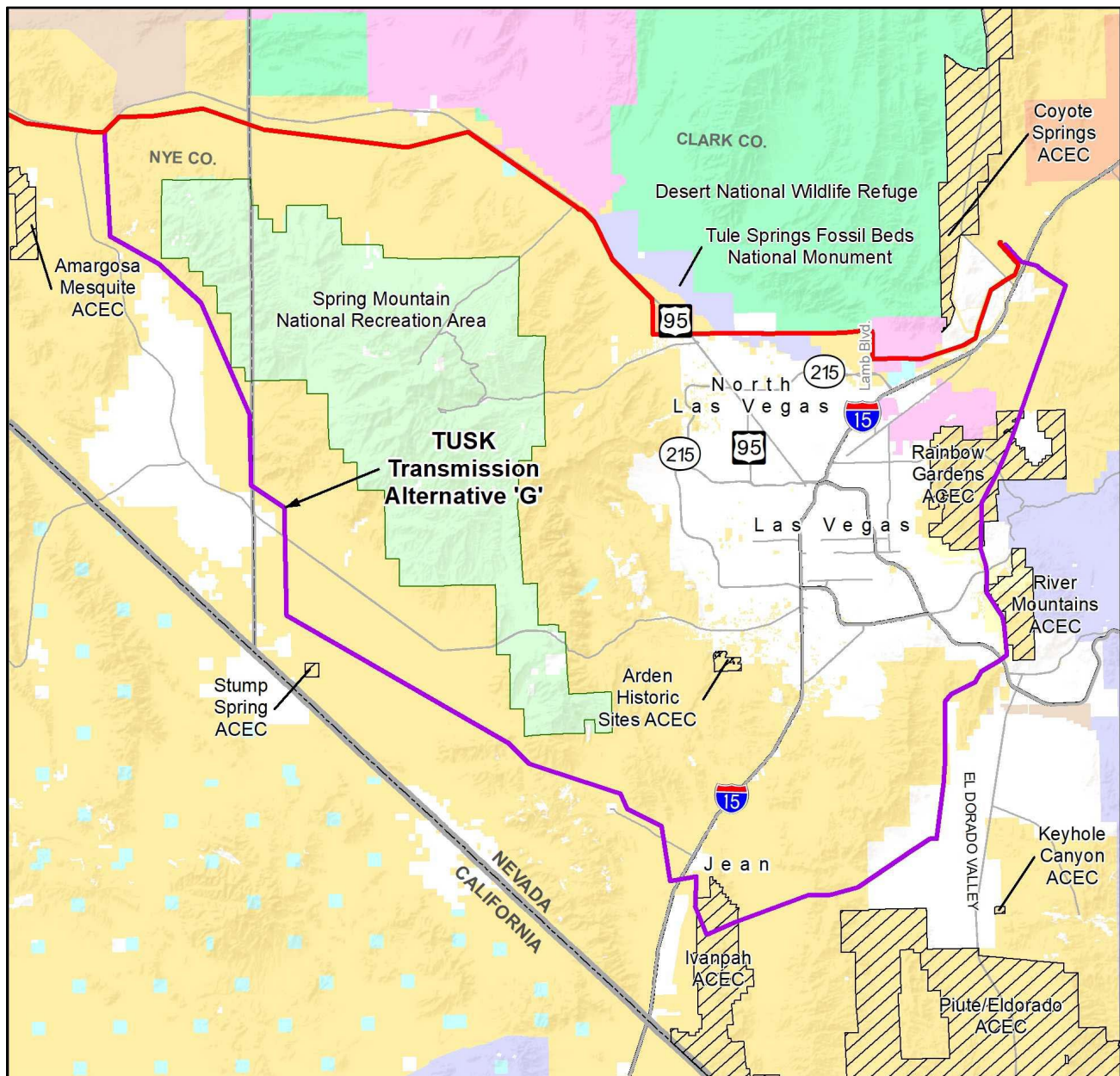
Beatty Transmission Alternative A would follow a portion of the Proposed Action but would veer to the south to avoid structures within the Atwood Preserve boundaries by spanning an approximately 340-foot segment where two parcel corners meet. Similarly, Beatty Transmission Alternative B would also avoid placing structures within the Atwood Preserve by spanning approximately 1,300 feet over the Atwood Preserve. Although no structures would be located within the Atwood Preserve boundaries, both Beatty Transmission Alternatives A and B that would span the preserve would still require a ROW on the Atwood Preserve for O&M. Compared to these three transmission alternatives, the Beatty Transmission Alternative C would run north of the Atwood Preserve and south of the Nevada Test and Training Range (NTTR) avoiding structures and overhead lines within the Atwood Preserve. Beatty Transmission Alternatives A, B, and C and the Proposed Action would be within the military's restricted airspace and would also cross the proposed NTTR federal land transfer area.

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<sup>5</sup> Previously referred to in the Draft EIS/RMPA as the 7J Ranch.



**Figure 2-9. TUSK Transmission Line Route Group Alternatives– TUSK Transmission Alternative F**



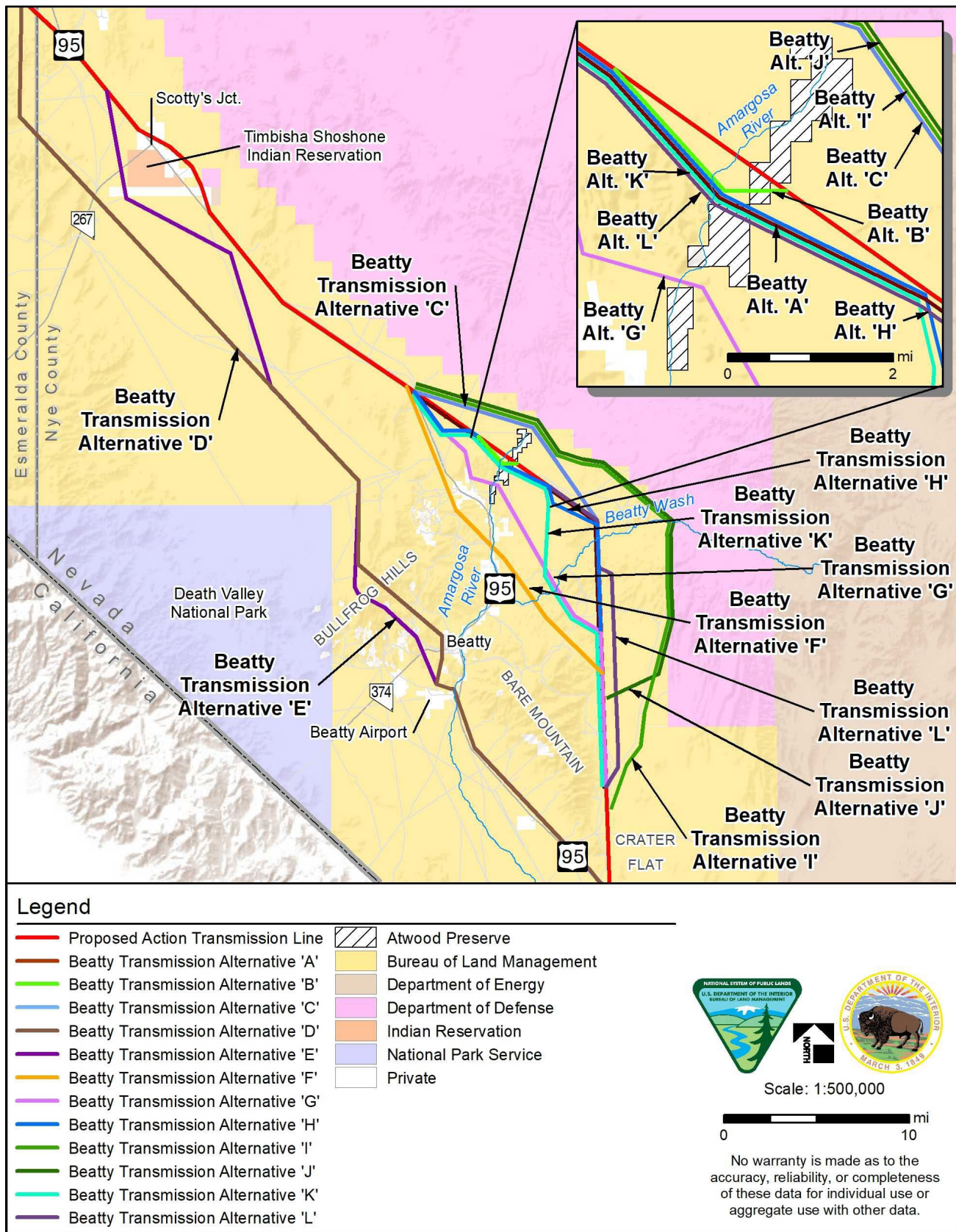
**Legend**

- |                                   |                              |
|-----------------------------------|------------------------------|
| Proposed Action Transmission Line | US Forest Service            |
| TUSK Transmission Alternative 'G' | Indian Reservation           |
| Bureau of Land Mangement ACEC     | National Park Service        |
| Bureau of Land Management         | Private                      |
| Department of Defense             | State                        |
| Department of Energy              | US Fish and Wildlife Service |

Scale: 1:800,000

No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure 2-10. TUSK Transmission Line Route Group Alternatives – TUSK Transmission Alternative G**



**Figure 2-11. Beatty Transmission Line Route Group Alternatives**

Beatty Transmission Alternatives D and E have similar routes and would run south and west of Beatty across the Bullfrog Hills for approximately 59 and approximately 52 miles, respectively. Beatty Transmission Alternative D would follow US 95 until the Beatty Airport where it would then turn west through the Bullfrog Hills and extend northwest before connecting to the Proposed Action approximately six miles south of the US 95 – SR 266 intersection. Beatty Transmission Alternative D would generally follow existing transmission lines. Similarly, Beatty Transmission Alternative E would run in the same alignment as Beatty Transmission Alternative D until crossing Bullfrog Hills. Beatty Transmission Alternatives D and E would avoid the proposed NTTR federal land transfer area and restricted airspace.

Beatty Transmission Alternatives F and G have similar routes. Beatty Transmission Alternative F would turn northwest just north of Bare Mountain approximately eight miles south of where the Proposed Action alignment turns northwest. This alternative would extend approximately 19 miles and run between Beatty and Atwood Preserve. Beatty Transmission Alternative F would cross US 95 approximately 6 miles north of Beatty before following the highway. Beatty Transmission Alternative G would extend approximately 15 miles between Beatty and Atwood Preserve and would cross on the north side of Bare Mountain and remain east of US 95. Both Beatty Transmission Alternatives F and G would avoid crossing private land, Range 77A restricted military airspace, and the proposed NTTR federal land transfer area.

Beatty Transmission Alternative H would run between Beatty and Atwood Preserve and avoid structures within the preserve boundaries by spanning an approximately 340-foot segment where the two parcel corners meet. Additionally, Beatty Transmission Alternative H would avoid crossing the proposed NTTR federal land transfer area by routing around the sections of land proposed for transfer to the northwest and southeast of the private lands associated with Atwood Preserve. This alternative would still be within the restricted military airspace.

During the public scoping period, modifications to the Beatty Transmission Alternative C and the Proposed Action were recommended for evaluation that would avoid, to the extent possible, existing mining claims. The Beatty Transmission Alternatives I and J were identified to the east of the Proposed Action closer to the NTTR. Both of these alternatives would cross through Crater Flat and run adjacent to NTTR, before joining the Proposed Action and Beatty Transmission Alternative C near their crossing US 95. Both Beatty Transmission Alternatives I and J would avoid crossing private land but would cross through Range 77A restricted military airspace and the proposed NTTR federal land transfer area.

Beatty Transmission Alternative K would follow approximately 4.3 miles of the southern portion of Beatty Transmission Alternative G and then would turn directly north for approximately 3.8 miles before connecting to Beatty Transmission Alternative H. Beatty Transmission Alternative K would continue along the Beatty Transmission Alternative H alignment, crossing over the two parcel corners of the Atwood Preserve. This alternative would avoid the NTTR federal land transfer area but would cross Range 77A restricted military airspace.

Approximately 11 miles north of where the Proposed Action would cross US 95 in Crater Flat, Beatty Transmission Alternative L would shift approximately 0.75 miles to the east before turning north and running parallel to the Proposed Action for approximately 12 miles before rejoining the Proposed Action alignment for approximately 2 miles. The Beatty Transmission Alternative L would then align with an approximate eight-mile segment of Beatty Transmission Alternative H. Beatty Transmission Alternative L would avoid the proposed NTTR federal land transfer area and span the two parcel corners of the Atwood Preserve. A permanent ROW would be required for O&M but there would be no structures constructed within the

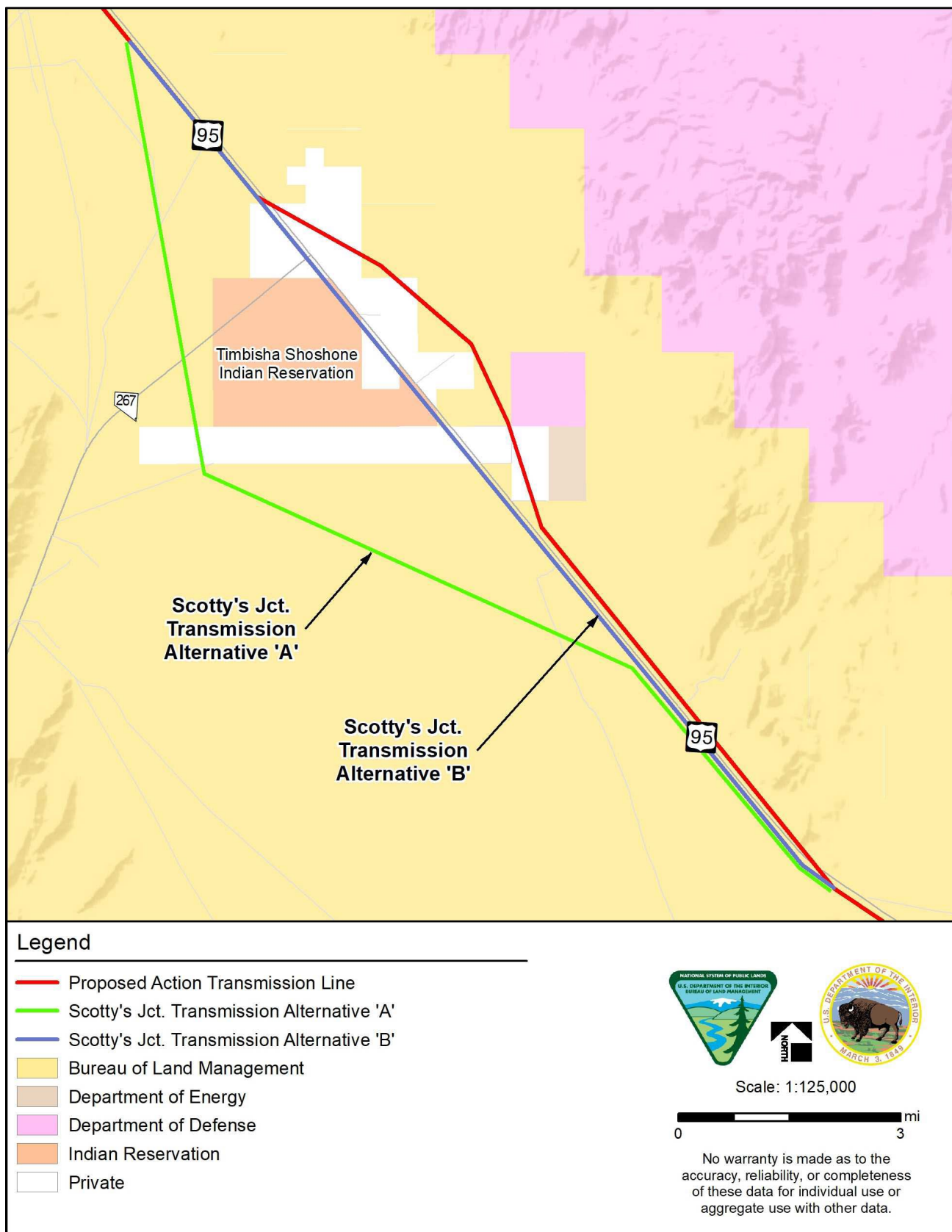
Atwood Preserve. Beatty Transmission Alternative L would be located within Range 77A restricted military airspace.

#### **2.2.4 Scotty's Junction Transmission Line Route Group Alternatives**

The Scotty's Junction Transmission Alternative Route Group includes three alternative route alignments beginning approximately 11 miles south of Scotty's Junction (the intersection of US 95 and SR 267) along the US 95 and extending approximately 4 miles north of the intersection (refer to Figure 2-12). The Proposed Action for this transmission line route group would run parallel to the US 95 except for an approximately 5-mile stretch that would go around Scotty's Junction to the northeast of the highway. This transmission alternative would not cross the Timbisha Shoshone Reservation. Approximately 7 miles south from the intersection of US 95 and SR 267, Scotty's Junction Transmission Alternative A would run on the southside of US 95 and to the southwest of the Timbisha Shoshone Reservation. Similar to the Proposed Action, Scotty's Junction Transmission Alternative A would not cross the Timbisha Shoshone Reservation. This transmission alternative would reconnect with the Proposed Action approximately four miles north of the intersection of US 95 and SR 267. Scotty's Junction Transmission Alternative B would run parallel to US 95 on the south side of the highway in an existing transmission line corridor for approximately 12 miles. This alternative would cross Timbisha Shoshone Reservation land and reconnect with the Proposed Action approximately one mile north of Scotty's Junction.

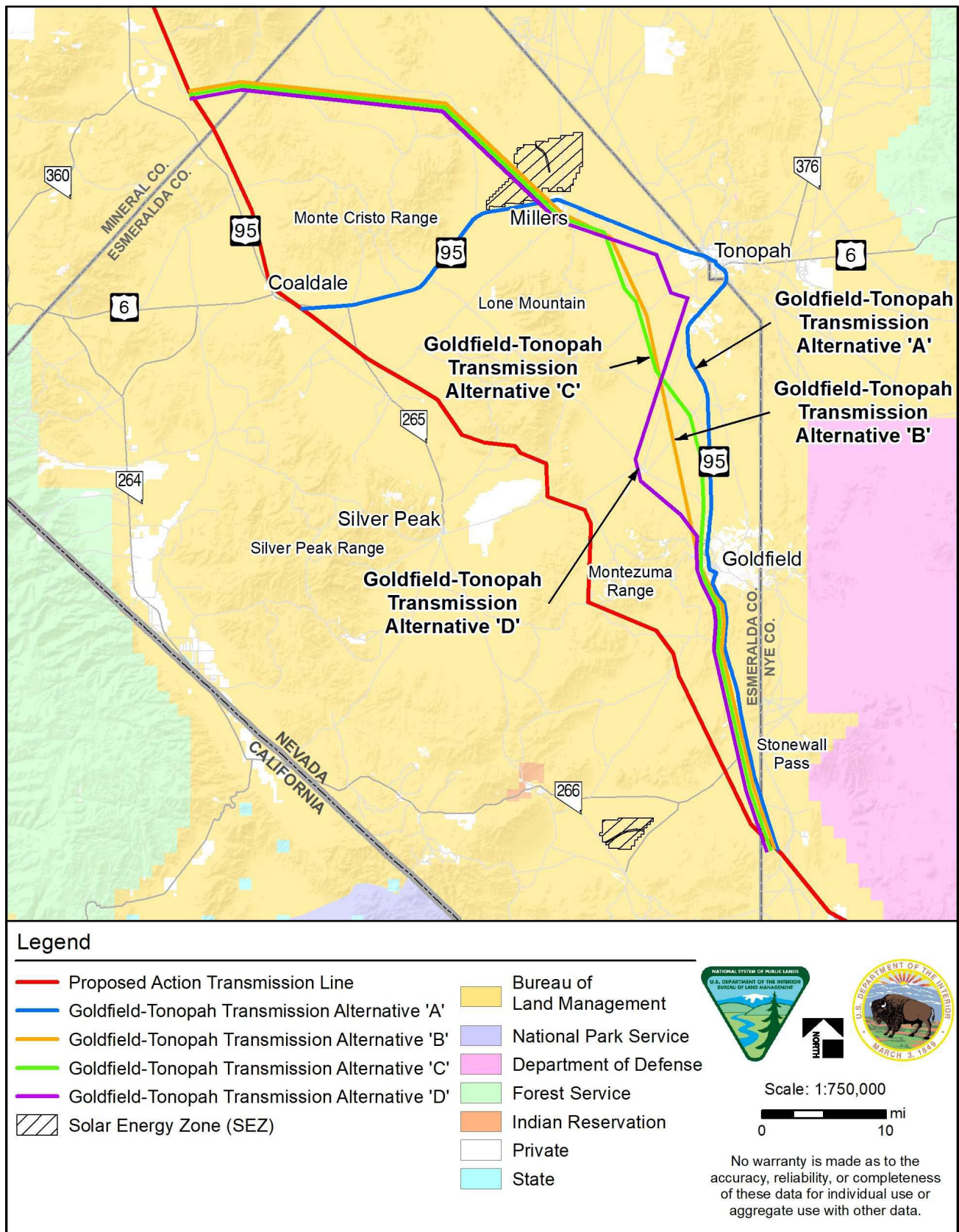
#### **2.2.5 Goldfield-Tonopah Transmission Line Route Group Alternatives**

During the public scoping period and the public comment period on the Draft EIS/RMPA, several alternatives were suggested that would follow a recommended revision to a designated Section 368 corridor (WWEC 18-224) and keep the GLWP generally within the US 95 corridor (BLM et al. 2022). In April 2022, the BLM issued a final report outlining potential recommendations to WWEC designated in 2009 (BLM et al. 2022). This final report included a recommendation to revise a portion of WWEC 18-224 from its current location, which tracks the Proposed Action, to a location following US 95 through Goldfield and Tonopah and then either turning west along US 95/US Route 6 (US 6) back to Coaldale or turning northwest at the Millers SEZ to a location just east of the US 95 and SR 360 intersection. The rationale offered in the final report for this recommended shift of WWEC 18-224 was to collocate with existing infrastructure and provide access to the Millers SEZ. According to public input received during scoping and on the Draft EIS/RMPA, the approximately 83.4 mile stretch of the Proposed Action is currently unoccupied by utility infrastructure and that the introduction of the GLWP in this area would be new utility infrastructure, impacting the currently minimally developed area. While this section is currently unoccupied by utility infrastructure, there is an existing perpetual authorization that was issued to the Western Area Power Administration (NVN-106178436) by the BLM for a power facility and transmission. Until such time as the ROW is relinquished, the section remains available for the Western Area Power Administration to develop. The recommendations in the 2022 final report were not based on or developed through a NEPA analysis and did not analyze potential environmental or social impacts, nor did the recommendations consider the economic feasibility of the proposal. The 2022 final report also stated that if the GLWP is approved and constructed in the future, the GLWP route would become a preferred route for energy transport and the agencies should consider revising the corridor along the approved route (BLM et al. 2022).



**Figure 2-12. Scotty's Junction Transmission Line Route Group Alternatives**





**Figure 2-13. Goldfield-Tonopah Transmission Line Route Group Alternatives**

The Goldfield-Tonopah Transmission Line Route Group consists of four transmission alternatives and the Proposed Action (Figure 2-13). The Goldfield-Tonopah Transmission Alternative A would follow US 95 starting approximately at Milepost (MP) NY-103<sup>6</sup> near Stonewall Pass in Nye County, continue adjacent to the highway through the communities of Goldfield and Tonopah, and turn west along US 95/US 6 where it would join the Proposed Action near MP ES-21 just east of Coaldale. This transmission alternative would run adjacent to Millers SEZ near MP ES-44. Similarly, the Goldfield-Tonopah Transmission Alternatives B, C, and D would also follow US 95 starting near Stonewall Pass and continue in generally in the same alignment until reaching the community of Goldfield. The Goldfield-Tonopah Transmission Alternative B would begin to shift away from the highway corridor near MP ES-17, pass to the west of Goldfield, and continue northwest toward Millers SEZ. Crossing US 95/US 6 near US 6 MP ES-44.6, this transmission alternative would continue to the northwest, crossing over the Monte Cristo Range and turning west across Monte Cristo Valley. The Goldfield-Tonopah Transmission Alternative B would connect to the Proposed Action just east of the US 95 and SR 360 intersection. The Goldfield-Tonopah Transmission Alternative C would pass through the west edge of Goldfield and cross over US 95 twice between MP ES-20 and MP ES-22. The Goldfield-Tonopah Transmission Alternative C would turn northwest near MP ES-28.3 for approximately 8.4 miles, and then would follow the Goldfield-Tonopah Transmission Alternative B alignment to the Proposed Action. The Goldfield-Tonopah Transmission Alternative D would follow the Goldfield-Tonopah Transmission Alternative C alignment until MP ES-22.3 where the transmission line alignment would turn northwest and would be collocated with existing overhead transmission lines until reaching the Millers SEZ. The Goldfield-Tonopah Transmission Alternative D would cross over US 95/US 6 and connect to the Proposed Action in the same alignment as Goldfield-Tonopah Transmission Alternatives B and C.

### **2.2.6 Walker River Transmission Line Route Group Alternatives**

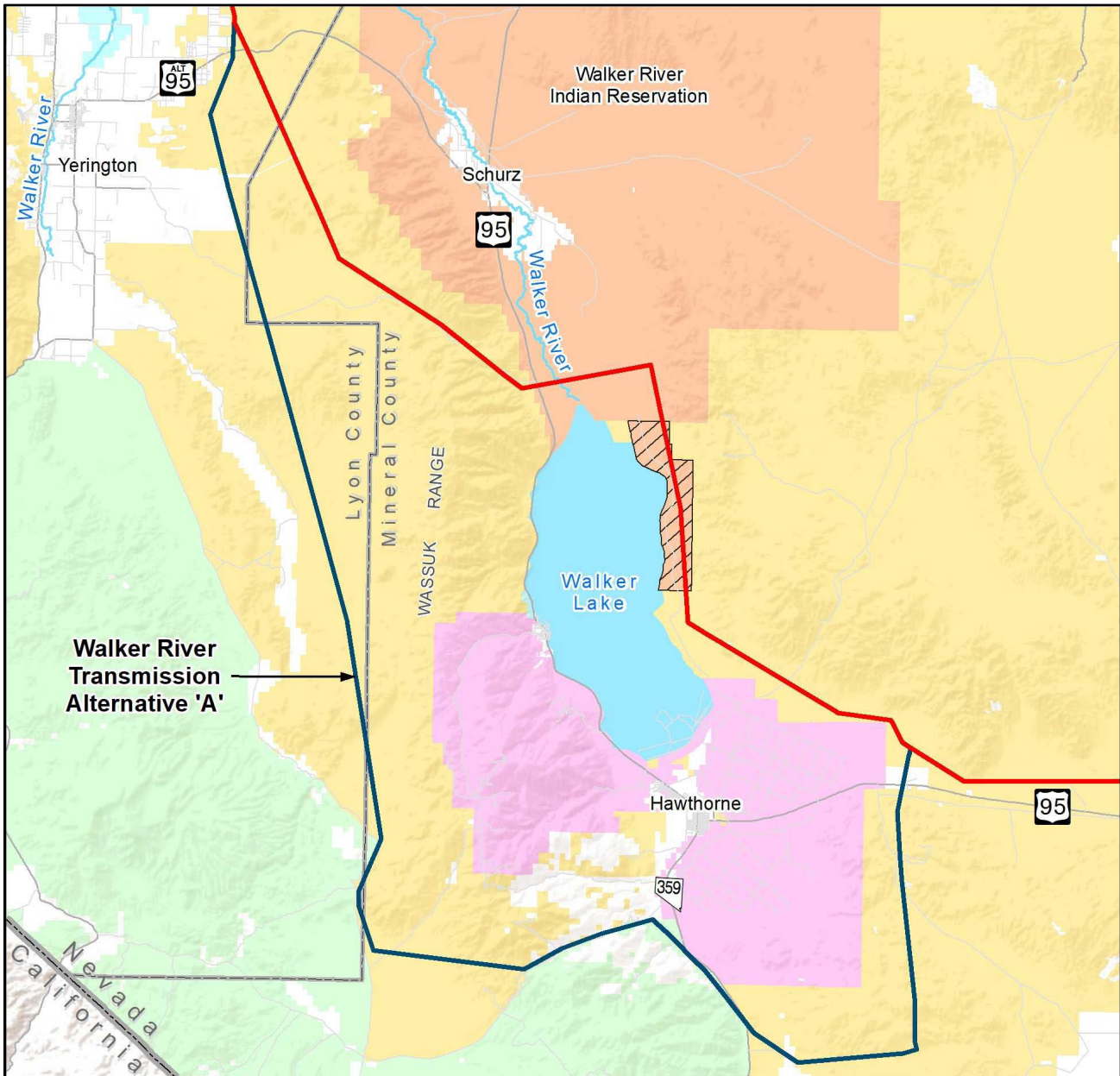
The Walker River Transmission Line Route Group includes two alternative route alignments (refer to Figure 2-14). The comparative segment of the Proposed Action would run north of Hawthorne along the east side of Walker Lake crossing the Walker River Reservation and US 95 north of Walker Lake adjacent to an existing transmission line. The Proposed Action would then cross the Wassuk Range before heading into the Yerington/Mason Valley area. Walker River Transmission Alternative A would turn south from the Proposed Action approximately 10 miles east of Hawthorne and follow an existing transmission line corridor before turning west towards SR 359. This transmission alternative would cross the Wassuk Range then turn north and follow WVEC 18-23 until it would reconnect with the Proposed Action in the Mason Valley/Yerington area just north of US 95A.

### **2.2.7 Mason Valley Wildlife Management Area Transmission Line Route Group Alternatives**










The Mason Valley Wildlife Management Area (WMA) Transmission Alternative Route Group includes three alternative route alignments and the Proposed Action. Mason Valley WMA Transmission Alternatives B and C were developed based on comments received during the GLWP scoping process. The Proposed Action would cross the Mason Valley WMA just north of the existing railroad line as it enters the proposed Fort Churchill Substation. Mason Valley WMA Transmission Alternatives B and C would avoid crossing the Mason Valley WMA (refer to Figure 2-15), however all the Action Alternatives would cross the Walker River. Mason Valley WMA Transmission Alternative A would diverge from the Proposed Action at

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<sup>6</sup> For MP references, the mile location is provided with the county noted as follows; Clark County – CL; Nye County – NY; Esmeralda County – ES; Mineral County – MI; Lyon County – LY; Storey County – ST; and Washoe County – WA.



**Legend**

- |   |  |
|---|--|
|  Proposed Action Transmission Line         |  US Forest Service  |
|  Walker River Transmission Alternative 'A' |  Indian Reservation                                       |
|  Bureau of Land Management                 |  Private  |
|  Department of Defense                     |  Water  |
|   |  Lands Pending Transfer to the Walker River Paiute Tribe* |



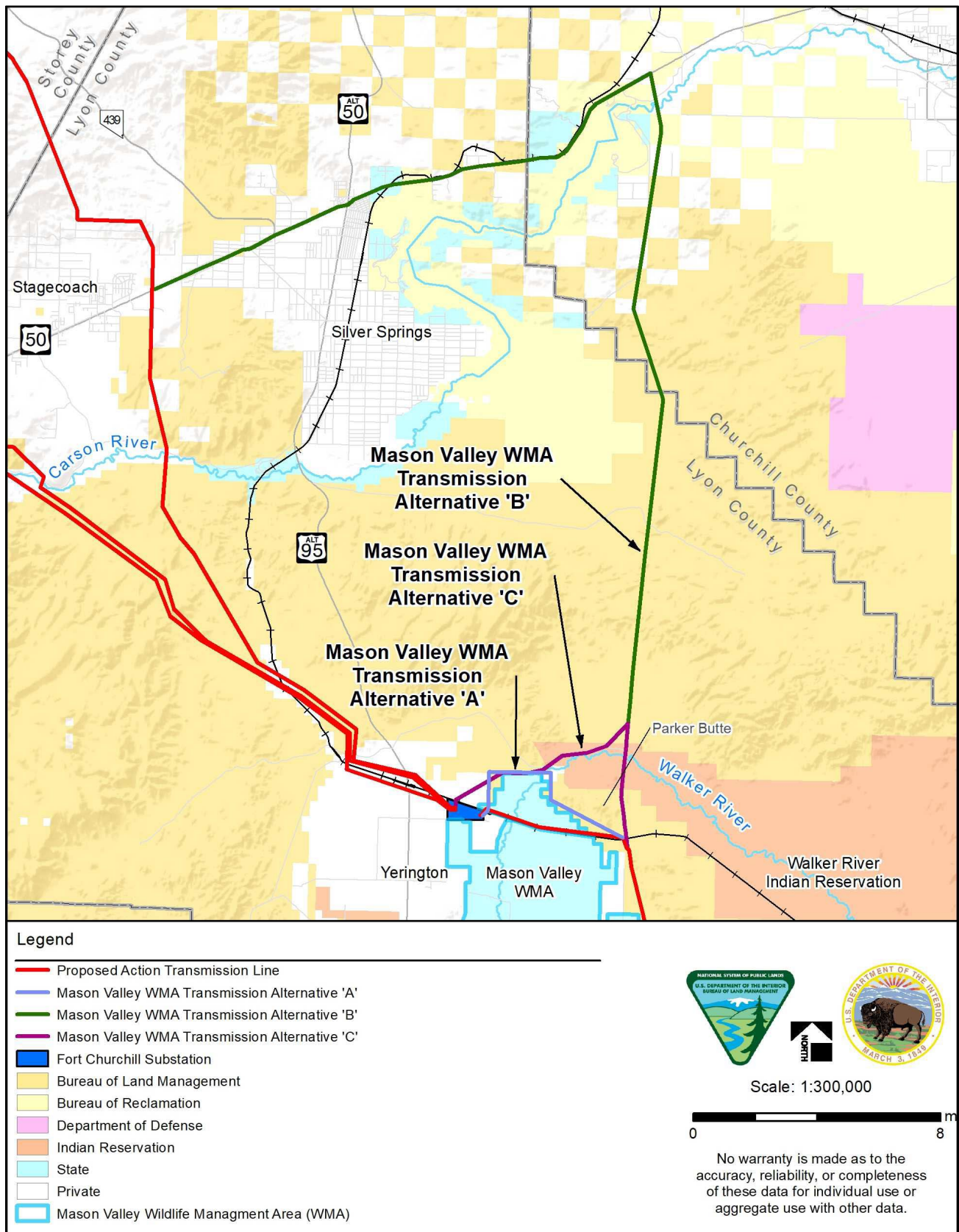
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No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

\*Lands pending transfer to the Walker River Paiute Tribe are shown on figures in this EIS as Tribal lands. The BLM's Nevada Surface Management Agency dataset will be updated once the lands transfer has been finalized.

**Figure 2-14. Walker River Transmission Line Route Group Alternatives**



**Figure 2-15. Mason Valley WMA Transmission Line Route Group Alternatives**

the railroad along the south side of Parker Butte. This alternative would then follow the northern boundary of the Mason Valley WMA before turning south, crossing the railroad a second time, and entering the Fort Churchill Substation. Mason Valley WMA Transmission Alternative A would cross through the Mason Valley WMA and would require one turning structure within the WMA boundary in order to cross the railroad and enter the Fort Churchill Substation.

Like Mason Valley WMA Transmission Alternative A, Mason Valley WMA Transmission Alternative B would diverge from the Proposed Action at the railroad along the south side of Parker Butte Mason Valley crossing the Walker River Indian Reservation. This alternative would generally follow an existing transmission line extending north to US 50 before turning west and connecting to the Proposed Action near Stagecoach. This transmission alternative would require the Fort Churchill Substation to be relocated since the 525-kV transmission line would no longer connect at that location and new 345-kV transmission line alignments would be needed to connect to the Mira Loma and Comstock Meadows substations.

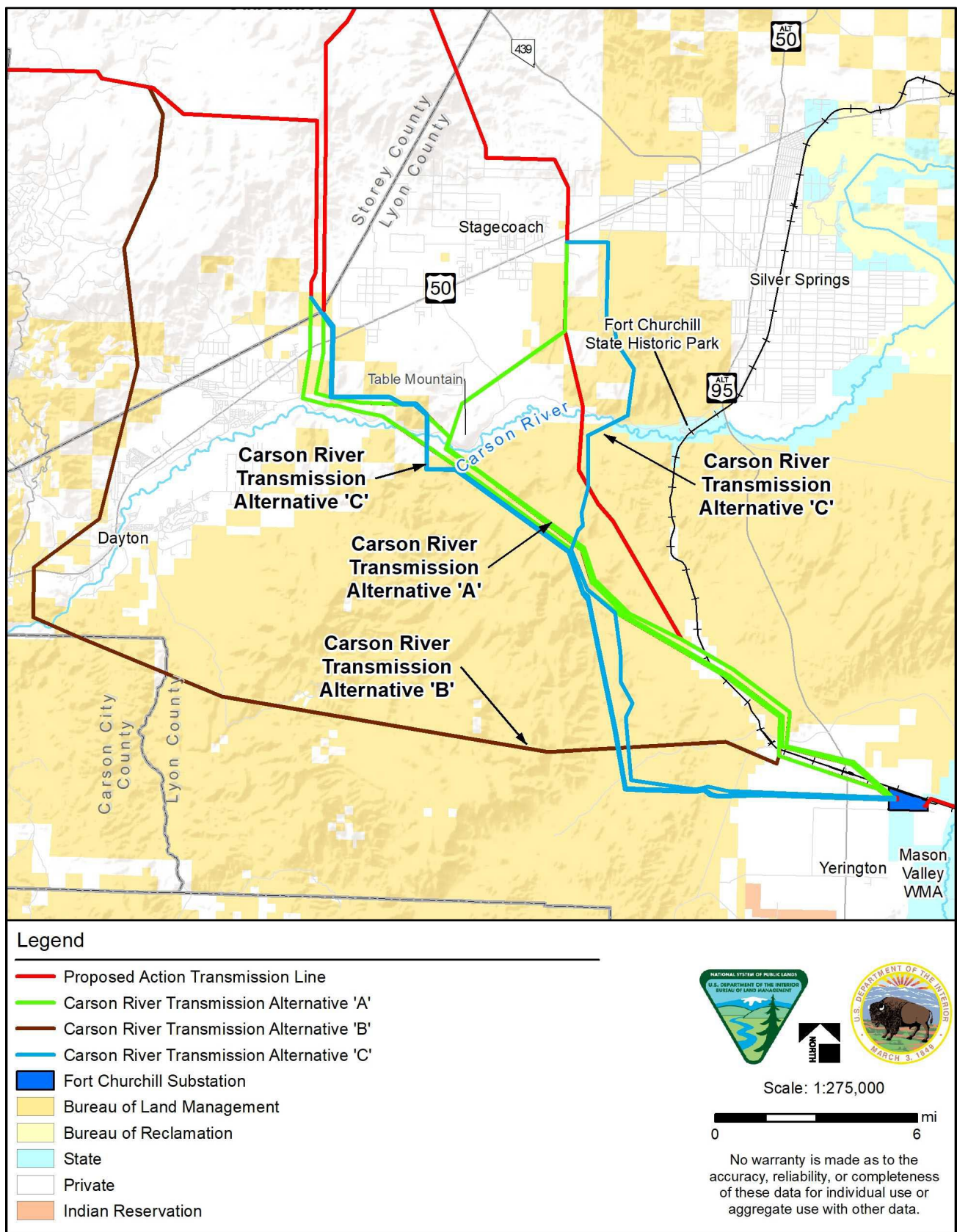
Similar to Mason Valley WMA Transmission Alternatives A and B, the Mason Valley WMA Transmission Alternative C would diverge from the Proposed Action after crossing the railroad and would follow an existing transmission line for approximately four miles through the Walker River Indian Reservation. This alternative would turn sharply to the southwest just north of the Walker River Indian Reservation for approximately six miles before crossing the railroad for a second time, passing through private lands, and entering the Fort Churchill Substation.

### **2.2.8 Carson River Transmission Line Route Group Alternatives**

The Carson River Transmission Line Route Group includes four alternatives (refer to Figure 2-16). The Proposed Action would leave the Fort Churchill Substation heading northwest across the Mason Valley. Once the 345-kV lines would cross the Adrian Valley and the railroad, the 345-kV Fort Churchill to Comstock Meadows #2 would split from the other two 45-kV lines before crossing the Carson River approximately 6 miles upstream of the other two 345-kV lines and approximately 0.9 miles west of the Fort Churchill State Historic Park. Carson River Transmission Alternative A would keep the three 345-kV transmission lines together after leaving the Fort Churchill Substation until after they cross the Carson River. After crossing the Carson River, the Fort Churchill to Comstock Meadows #2 transmission line would turn east around Table Mountain and run approximately five miles before rejoining the Proposed Action.

During the public scoping period, a comment was submitted requesting an alternative in the Carson River Transmission Line Route Group area that would follow an alignment that the Proponent considered in their Routing and Constraint Study referred to as Route Link 310 (NV Energy 2023). The three 345-kV transmission lines associated with Carson River Transmission Alternative B would go west from the proposed Fort Churchill Substation across the Pine Nut Mountains for approximately 22.8 miles before crossing the Carson River. After crossing the river, the three 345-kV lines would turn north for approximately 17.5 miles, passing through the community of Dayton and continuing between the Flower and Virginia ranges before reconnecting to the Proposed Action approximately 8 miles east of the Mira Loma Substation. Although not provided in the scoping comment, the two 345-kV Fort Churchill to Comstock Meadows #1 and #2 transmission lines would need to connect to the Comstock Meadows Substation.

The three 345-kV transmission lines associated with Carson River Transmission Alternative C would leave the proposed Fort Churchill Substation and go directly west for approximately 7.9 miles before turning north. This transmission alternative's Fort Churchill to Comstock Meadows #2 line would generally parallel the other two 345-kV lines for approximately 7.4 miles before turning to the northeast and crossing the



**Figure 2-16. Carson River Transmission Line Route Group Alternatives**

Carson River. The Carson River Transmission Alternative C's Fort Churchill to Comstock Meadows #2 line would continue north after crossing the river and connect to the Proposed Action approximately 0.2 miles south of US 50. The Fort Churchill to Comstock Meadows #1 and the Fort Churchill to Mira Loma lines would follow a similar alignment as the Proposed Action and would cross the Carson River approximately 6.3 miles downstream of the Fort Churchill to Comstock Meadows #2 line.

### **2.2.9 Underground Harry Allen to Fort Churchill Transmission Line Route Group Alternatives**

The Underground Harry Allen to Fort Churchill Transmission Line Route Group would include two alternatives. The Proposed Action between the Fort Churchill Substation and Harry Allen Substation is shown on Figure 2-1 and discussed in Section 2.1 Route Description and would consist of all overhead transmission lines. The Underground Harry Allen to Fort Churchill to Transmission Alternative A would underground the 525-kV line for the approximately 360 miles between the two substations and would generally follow the same alignment as the Proposed Action. This alternative would require the construction of underground duct banks for the entire length of the transmission line alignment, reactor stations, manholes along the length of the underground line, and transition stations. Two concrete-encased duct banks would be constructed by excavating two 8-foot-deep by 8-foot-wide trenches approximately 50 feet apart and placing 12 polyvinyl chloride conduits (8-inch) in each trench. Splice enclosures are compartments approximately 10-feet-wide, 10-feet-deep, and 64-feet-long that would provide access for installing and splicing cable and would be located between 500 feet to 1,300 feet apart. Two transition stations, each approximately five acres in size would be required to transition the overhead non-insulated conductor to underground insulated conductor. Transition stations would be required at reactor stations approximately every 20 miles. Approximately 150 feet of permanent disturbance would be required and would include the area for access, construction, and excavated material. The ground surface above the trench would need to remain cleared to facilitate maintenance and emergency repair access.

## **2.3 Alternatives Considered but Eliminated from Detailed Analysis**

Refer to Appendix AA. Alternatives Considered but Eliminated from Detailed Analysis for a discussion of the alternatives that were considered, but eliminated from detailed analysis in this Final EIS/Proposed RMPA. The information in Appendix AA was previously included in the Draft EIS/RMPA in Section 2.3. Any changes that have been made to Section 2.3 are a result of comments and input on the Draft EIS/RMPA.

## **2.4 Alternatives Raised During Public Scoping Considered but Eliminated from Detailed Analysis**

Refer to Appendix AA. Alternatives Considered but Eliminated from Detailed Analysis for a discussion of the alternatives raised during public scoping that were considered but eliminated from detailed analysis in this Final EIS/Proposed RMPA. The Beatty Transmission Alternatives I and J (Section 2.4.1), Goldfield-Tonopah Transmission Alternative A (Section 2.4.2), and Carson River Transmission Alternative B (Section 2.4.3) included in Section 2.4 of the Draft EIS/RMPA have been moved to Section 2.3.11, Section 2.3.16, and Section 2.3.20, respectively, in Appendix AA. Any changes that have been made to Section 2.4 are a result of comments and input on the Draft EIS/RMPA.

## 2.5 Amargosa and Esmeralda Substation Group Alternatives

Potential substation location alternatives were grouped into smaller geographic areas to allow for localized comparisons among the Amargosa and Esmeralda substation alternatives. The substation alternatives identified by the Cooperating Agencies, the public, the Proponent, and the BLM are focused on two geographic areas (Table 2-5 and Figure 2-17). Figure 2-17 shows the location of each of the substation alternatives.

**Table 2-5. Amargosa and Esmeralda Substation Group Alternatives Considered**

<b>Substation Alternative Group</b>	<b>Substation Alternatives</b>
Amargosa (AS)	AS-1 and AS-2
Esmeralda (ES)	ES-1, ES-2, and ES-3

*Table Acronym(s): AS – Amargosa Substation; ES – Esmeralda Substation*

### 2.5.1 Amargosa Substation Group Alternatives

The Amargosa Substation (AS) Alternatives consider different locations over a range of approximately 6.7 miles in Nye County for an approximately 109-acre substation (Figure 2-17). The AS-1 substation location is approximately 12.2 miles west of the junction of US 95/SR 373 along the south side of the transmission line alignment. The AS-2 (Proposed Action) is approximately 6.1 miles west of the junction of US 95/SR 373 along the south side of the transmission line alignment.

### 2.5.2 Esmeralda Substation Group Alternatives

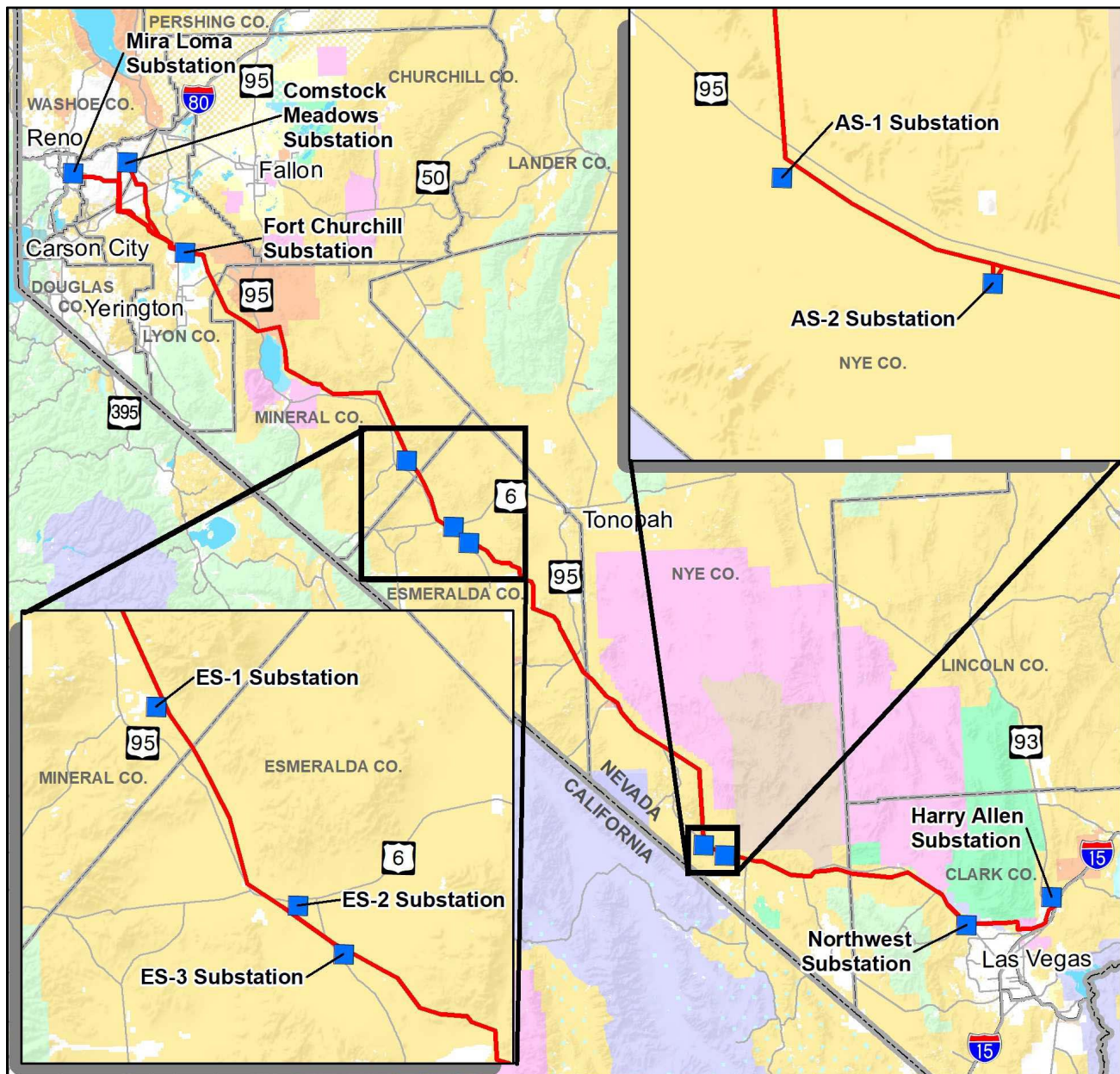
The Esmeralda Substation (ES) Alternatives consider different locations over a range of approximately 30 miles in Mineral County for an approximately 109-acre substation (Figure 2-17). The ES-1 substation location is approximately 8.4 miles south of Mina, in Mineral County, along the west side of the transmission line alignment. The ES-2 (Proposed Action) is approximately 4.4 miles southeast of the junction of US 95/US 6 in Esmeralda County, adjacent to SR 265, and along the east side of the transmission line alignment. The ES-3 would be approximately 10.3 miles southeast of the junction of US 95/US 6 in Esmeralda County, along the west side of the transmission line alignment.

## 2.6 Microwave Facility Alternatives





### 2.6.1 Amargosa Microwave Group Alternatives

The Amargosa Microwave (AM) Site Alternatives would consist of two different locations for a new two-acre microwave facility. Both microwave alternatives would be located along SR 373 in Nye County, approximately 0.5 miles north of the Nevada-California state line. The Proponent identified the proposed AM-1 on private lands located approximately 700 feet to the southeast of AM-2 on the east side of SR 373. The AM-2 (Proposed Action) would be located west of SR 373 on BLM-administered lands. Figure 2-18 shows the location of the Amargosa Microwave alternatives.



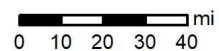


**Legend**

- |   |   |
|---|---|
|  Substation                        |  US Forest Service     |
|  Proposed Action Transmission Line |  Indian Reservation    |
|  Bureau of Land Management         |  National Park Service |
|  Department of Energy              |  State                 |
|  Bureau of Reclamation             |  Private               |
|  Department of Defense             |  Water                 |
|  US Fish and Wildlife Service      |   |



Scale: 1:3,000,000



No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure 2-17. Amargosa and Esmeralda Substation Group Alternatives**

## 2.7 Action Alternatives Carried Forward

In addition to the Proposed Action, the following transmission line route Action Alternatives listed in Table 2-6 are analyzed in detail in Chapter 3 of this Final EIS/Proposed RMPA. Table 2-7 includes the Action Alternatives' approximate length and their respective temporary and permanent ROW areas. All the substation and microwave alternatives are analyzed in detail.

**Table 2-6. Transmission Line Route Group Alternatives to be Fully Analyzed**

Transmission Line Route Group	Alternative(s)
Losee	Alternative A
TUSK	Alternative B
Beatty	Alternatives A, C, G, K, and L
Scotty's Junction	Alternatives A and B
Mason Valley WMA	Alternative A
Carson River	Alternatives A and C

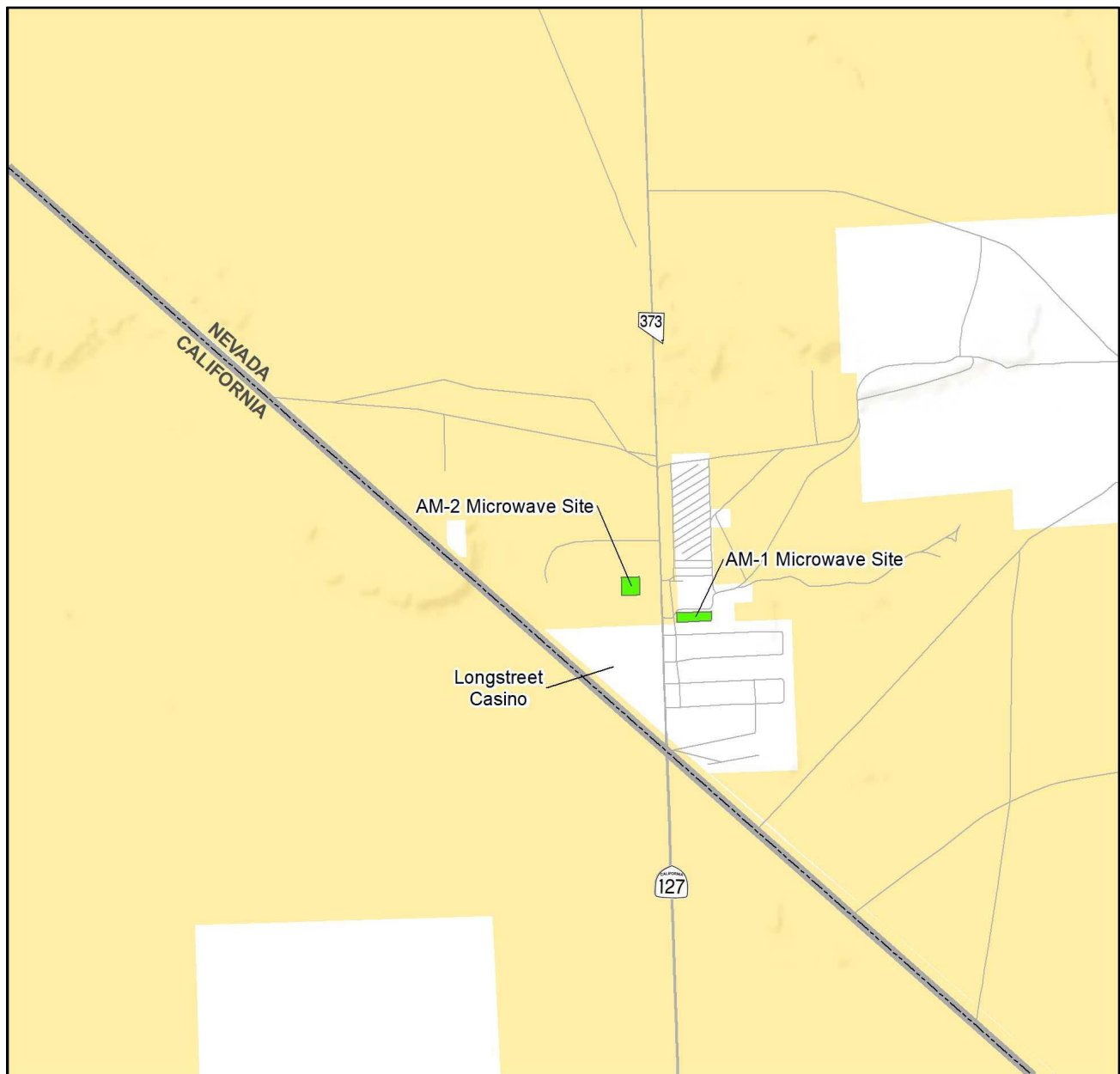
*Table Acronym(s):* TUSK–Tule Springs Fossil Beds National Monument; WMA– Wildlife Management Area

**Table 2-7. Action Alternatives Approximate Lengths and Temporary and Permanent ROW Areas**

Alternative	Lengths (est. miles)	Temporary ROW (acres)	Permanent ROW (acres)
Losee Transmission Alternative A	4.0	297.0	97.8
Losee – Proposed Action	4.1	302.3	99.4
TUSK Transmission Alternative B	1.5	77.0	36.4
TUSK – Proposed Action	1.5	3.5 <sup>a</sup>	19.8
Beatty Transmission Alternative A	26.5	2,279.4	643.2
Beatty Transmission Alternative C	27.1	2,336.1	658.5
Beatty Transmission Alternative G	25.4	2,616.0	616.9
Beatty Transmission Alternative K	26.8	2,369.8	650.7
Beatty Transmission Alternative L	27.5	2,447.6	668.0
Beatty – Proposed Action	26.4	2,296.5	641.2
Scotty's Junction Transmission Alternative A	16.2	1,185.3	393.7
Scotty's Junction Transmission Alternative B	14.8	1,084.2	360.0
Scotty's Junction – Proposed Action	15.1	1,104.8	366.8
Mason Valley WMA Transmission Alternative A	7.0	695.6	170.1
Mason Valley WMA – Proposed Action	4.9	359.3	118.4
Carson River Transmission Alternative A	75.8	5,317.6	1,825.9
Carson River Transmission Alternative C	82.5	6,297.5	1,935.7
Carson River – Proposed Action	71.8	6,440.8	1,740.0

*Table Acronym(s):* Est. – Estimated; ROW – Right-of-way; TUSK – Tule Springs Fossil Beds National Monument; WMA – Wildlife Management Area

*Table Note(s):* <sup>a</sup>In order to accommodate construction activities within the TUSK, a 55-foot by 250-foot workspace for each structure would be disturbed for construction of the structure within the TUSK. For the 11 monopole structures within the TUSK, approximately 3.5 acres would be disturbed during construction, which would include the work area to accommodate equipment and activities.



**Legend**

- Microwave Site
- Bureau of Land Management
- Private



Scale: 1:36,000



No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure 2-18. Amargosa Microwave Group Alternatives**

## **2.8 No Action Alternative**

Under the No Action Alternative, the federal ROW agencies would not grant a ROW/Special Use Permit (SUP) for construction, operation, and decommissioning of the GLWP and the BLM would not amend the relevant RMPs. The GLWP facilities would not be built, and existing land uses and present activities in the GLWP area would continue. The land on which the GLWP is located would be available to other uses that are consistent with the respective land use plans.

The GLWP is needed to deliver the projected electric demand in Nevada with sufficient levels of redundancy to maintain reliable operation in the event of a loss or outage of system elements. Under the No Action Alternatives, the purpose and need of the proposed GLWP would not meet projected increases in demand in the Proponent's service area, which could result in insufficient supply to meet energy demand and an increase in the potential for supply outages. The Proponent would not progress in its mandate to contribute to percentage of electricity that must come from renewable energy or energy efficiency measures according to Nevada's Renewable Energy Portfolio. The Proponent would also not help meet Nevada's statewide net Greenhouse Gas Emission Reduction requirement by contributing transmission connections to renewable energy industries.

## CHAPTER 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the affected (existing) environment in the GLWP area and discusses potential effects associated with the Proposed Action and other Action Alternatives. Measures to avoid or minimize impacts are addressed at the end of each resource discussion. The terms “impacts” and “effects” are used interchangeably, and the terms “increase” and “decrease” are used for comparisons. Impacts are described in terms of duration, location, and potentially affected environment. For the purpose of this analysis, duration (temporal scale) of the effects is defined below. Effect durations would apply to each of the resources/uses that are analyzed in this Final EIS/Proposed RMPA but may vary slightly depending on the resource/use. Thirty-five years would include the duration of the ROW grant/permit (30 years) plus an additional five years to allow for site reclamation after decommissioning.

- **Short-term/Temporary:** These are impacts that would last up to eight years (three years to complete construction activities and five years for site reclamation).
- **Long-term:** These are impacts that would be greater than eight years.

For the purpose of this EIS, several factors and conditions were taken into account in the affected environment and the analysis of the environmental consequences of the Action Alternatives. These are noted as follows:

- The geographic scale of the effects is defined as a five-mile radius from the transmission line centerline for all Action Alternatives, unless otherwise noted. In this Final EIS/Proposed RMPA, this 10-mile-wide corridor (approximately 4,315 square miles or approximately 2,761,704 acres) is referred to as the “GLWP area.”
- The impacts common to all Action Alternatives are described in each resource/use section. These effects are not repeated for each Action Alternative, instead the specific impacts associated with each Action Alternative are identified and discussed.
- To compare the transmission line Action Alternatives, common start and end points were determined within the same transmission line route group. In the discussion of the Action Alternative impacts within a given transmission line route group, the Proposed Action refers to the comparable segment of the Proposed Action relative to another transmission alternative and not to the entirety of the Proposed Action itself.
- Due to the preliminary nature of the Action Alternatives’ designs, access roads were not delineated for each transmission alternative analyzed in detail in the EIS. As a result, the analyses in the respective environmental consequences sections compare only the acres of temporary and permanent ROW areas of the Proposed Action to the respective transmission alternatives. The Proponent did provide the preliminary access roads for the Proposed Action.
- Due to rounding, some numbers, percentages, and/or totals identified in the text and tables of Chapter 3 may not sum precisely.

### 3.1 Federally Listed Species

#### 3.1.1 Issues Identified for Analysis

- How would construction, O&M, and decommissioning of the GLWP affect habitat, movement, and behavior of federally listed species from vegetation removal, change in predator species, habitat fragmentation, and noise?
- What would the impacts from reasonably foreseeable future actions to the Mojave desert tortoise be?
- How would the GLWP avoid and/or minimize impacts to Mojave desert tortoise and Bi-State Sage-grouse populations from tower siting in sensitive habitat potentially resulting in changes from raven (*Corvus corax*) predation?

#### 3.1.2 Analysis Area and Methodology

##### Analysis Area

The analysis areas<sup>7</sup> for federally listed species wildlife and plants are described in Table 3-1. The federally listed species wildlife and plant analysis areas contain the permanent and temporary ROW areas (transmission lines, distribution lines, access roads, and other components).

**Table 3-1. Federally Listed Species Analysis Areas**

<b>Analysis Area</b>	<b>Analysis Area Acres (estimated)</b>	<b>Analysis Area Square Miles (estimated)</b>	<b>Analysis Area Buffer</b>
Federally listed species wildlife analysis area	804,943	1,258	Temporary ROW area plus 0.5-mile buffer
Federally listed species plants analysis area	412,108	644	Temporary ROW area plus 1,640-foot buffer

*Table Acronym(s):* ROW – Right-of-way

##### Methodology

The most recent official list of threatened, endangered, candidate, and proposed species and designated and proposed critical habitats that may occur within the respective federally listed species analysis areas was obtained from the United States Fish and Wildlife Service (USFWS 2024b) on January 24, 2024, using the Information for Planning and Consultation (IPaC) review tool. A total of 16 species were on the list.

Based on coordination with the USFWS, six additional plant species were added for evaluation for a total of 22 species (personal communication V. Imhoff 2023b). While there were no currently documented occurrences of these six plant species and/or their habitats within the federally listed plant species analysis area, recent observations suggest that these six plant species may occur outside of the previous documented species' range. Because of this, the USFWS recommended a desktop review and field surveys be completed to identify whether there was suitable habitat within the federally listed plant species analysis area for these six plant species (see Section 3.1.3.9).

<sup>7</sup> The term "analysis area" used in this EIS has similarities to the term "action area" used in the GLWP Biological Assessment, which includes all areas that may be affected directly or indirectly by the GLWP. The geographic scale of the federally listed species wildlife and plant analysis areas in this EIS is similar in geographic scale as the action area in the Biological Assessment (BLM 2024c).

Additionally, the Draft EIS/RMPA identified the spring-loving centaury (*Zeltnera [Centaurium] namophilum*) as not occurring within the federally listed plant species analysis area. Based on coordination with the USFWS after the Draft EIS/RMPA was published (personal communication V. Imhoff 2023a), a population of spring-loving plants was observed near Beatty within the federally listed plant species analysis area. This species has been addressed in detail in the Final EIS/Proposed RMPA.

The northwestern pond turtle (*Actinemys marmorata*) has also been added to this Final EIS/Proposed RMPA since the Draft EIS/RMPA. This species was addressed in the Special Status Species section of the Draft EIS/RMPA (Section 3.3) and has since been proposed for federal listing as threatened under the ESA.

The BLM has incorporated the necessary evaluations for these seven plants and one wildlife species in this Final EIS/Proposed RMPA. Although the seven federally listed plant species and one wildlife species were not analyzed in the Draft EIS/RMPA, the impacts to these species discussed in Section 3.1.4 would not result in effects outside of the range of effects analyzed in the Draft EIS/RMPA. A supplemental EIS was therefore not required because the impacts to these species are not considered to be outside the spectrum of the analysis in the Draft EIS/RMPA (BLM 2008b).

Information on the 22 species' habitat associations and potential to occur within the respective federally listed species analysis areas is provided in Table F-1 in Appendix F. There are no designated critical habitats within the respective federally listed species analysis areas except for the proposed critical habitat for the Bi-State sage-grouse.

The potential occurrence of federally listed species in the respective federally listed species analysis areas was discussed in coordination with the BLM, NPS, USFWS and Nevada Department of Wildlife (NDOW). Information was gathered for each species by reviewing scientific reports and literature, analyzing Geographic Information System (GIS)-based natural resource data and species-specific GIS data, and conducting targeted biological surveys. It was determined that 15 federally listed or proposed plant and wildlife species have the potential to occur within the respective federally listed species analysis areas. These species are listed in Table 3-2. In addition to this Final EIS/Proposed RMPA, nine species are described in detail in the GLWP Biological Assessment (BA) (BLM 2024c) to support Endangered Species Act (ESA) Section 7 formal and informal consultation. The USFWS has completed formal and informal ESA Section 7 consultation with the BLM in the Biological Opinion (reference number 2024-0070122; refer also to Section 5.2.2) on the nine species addressed in the BA (BLM 2024c). The six remaining species with the potential to occur within the respective federally listed species analysis areas are described in the GLWP Biological Evaluation (BE) (BLM 2024b).

There is no suitable habitat present in the respective federally listed species analysis areas or the respective analysis areas are outside of the current ranges for the remaining seven wildlife and plant species on the USFWS IPaC list. There is suitable habitat for the monarch butterfly (*Danaus plexippus*), an ESA candidate species, within the federally listed species wildlife analysis area. However, because ESA Section 7 consultation is not required for candidate species, this butterfly species is addressed in Section 3.3 Special Status Species.

**Table 3-2. List of Threatened and Endangered Species with Potential to Occur in the Federally Listed Species Wildlife Analysis Area**

Common Name	Scientific Name	Status
Amargosa niterwort	<i>Nitrophila mojavensis</i>	LE with CH
Ash Meadows gumplant	<i>Grindelia fraxinoprattensis</i>	LT with CH
Ash Meadows blazingstar	<i>Mentzelia leucaophylla</i>	LT with CH
Ash Meadows sunray	<i>Enceliopsis nudicaulis</i> var. <i>corrugata</i>	LT with CH
Ash Meadows ivesia	<i>Ivesia kingii</i> var. <i>eremica</i>	LT with CH
Ash Meadows milkvetch	<i>Astragalus phoenix</i>	LT with CH
Bi-State sage-grouse	<i>Centrocercus urophasianus</i>	PLT with PCH
Lahontan cutthroat trout	<i>Oncorhynchus clarkii henshawi</i>	LT
Mojave desert tortoise	<i>Gopherus agassizii</i>	LT with CH
Mount Charleston blue butterfly	<i>Icaricia (Plebejus) shasta charlestonensis</i>	LE with CH
Northwest pond turtle	<i>Actinemys marmorata</i>	PLT
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	LE with CH
Spring-loving centaury	<i>Zeltnera [Centaurium] namophilum</i>	LT with CH
Western yellow-billed cuckoo	<i>Coccyzus americanus</i>	LT with CH
Yuma Ridgway's rail	<i>Rallus obsoletus (longirostris) yumanensis</i>	LE

Table Acronym(s): CH – Critical Habitat; LE – Listed Endangered; LT – Listed Threatened; PLT – Proposed Listed Threatened; PCH – Proposed Critical Habitat

Table Source(s): Personal communication, V. Imhoff (2023); USFWS (2024)

### 3.1.3 Affected Environment

This section provides a description of the affected environment for the 15 species that have potential to occur within the federally listed species wildlife analysis area. A more detailed description of the species and their habitat requirements is provided in the GLWP BA (BLM 2024c) and BE (BLM 2024b).

#### 3.1.3.1 Bi-State Distinct Population Segment of Greater Sage-grouse

The Bi-State sage-grouse is a distinct population that defines the southern limit of the species' range in eastern California and western Nevada. The Bi-State sage-grouse was previously proposed for listing in 2013 under the ESA with the status of threatened and proposed critical habitat for the species was identified (USFWS 2013c). In March 2020, the USFWS decided to withdraw the proposed listing and Section 4(d) rule based on the conclusion that threats to the Bi-State sage-grouse identified in the 2013 proposed listing were no longer as significant as previously understood (USFWS 2020e). The US District Court for the Northern District of California overturned the 2020 listing decision, effectually reinstating the 2013 proposed listing status and proposed designation of critical habitat for the Bi-State sage-grouse (N.D. Cal. 2022). In addition to the Bi-State sage-grouse being proposed for federal protection under the ESA, it is listed as a sensitive species by the BLM and is protected by measures outlined in the 2004 and 2012 Bi-State Action Plans (Bi-State Local Planning Group 2004; Bi-State Technical Advisory Committee Nevada and California [TAC] 2012; USFWS 2020e), the 2016 BLM Nevada California Greater Sage Grouse Distinct Population Segment Land Use Plan Amendment and ROD (BLM 2016b), and United States Forest Service (USFS) Land Management Plan Amendments for the Humboldt-Toiyabe National Forests (USFS 2015). Threats to this species include urbanization, historic grazing management, wildfire, invasive species expansion, infrastructure, and mineral development (USFWS 2020c).



### **Bi-State Sage-grouse Habitat Definition, Data, and Assumptions**

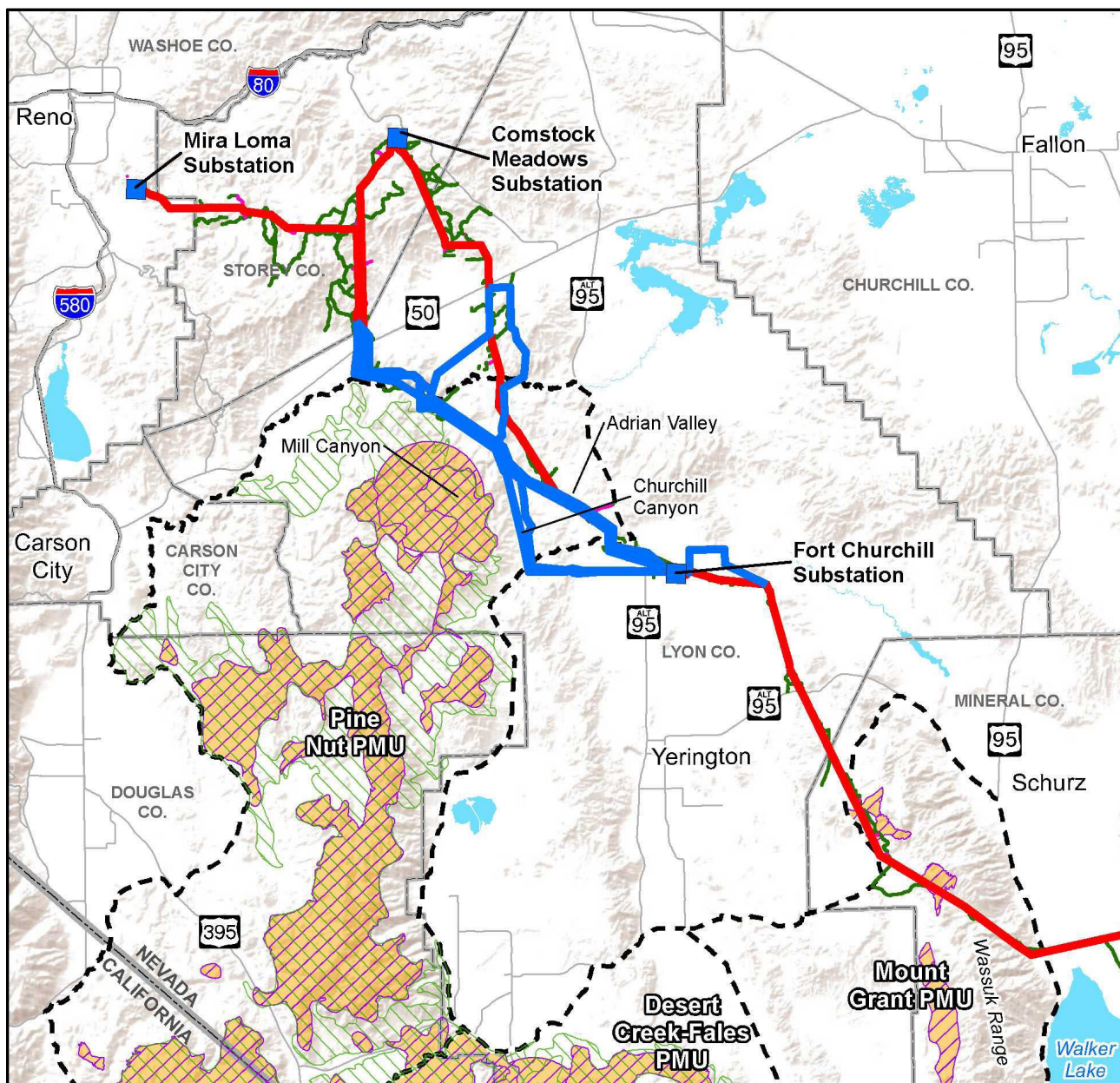
For this analysis, Bi-State sage-grouse habitat is the same habitat identified in the Bi-State sage-grouse RMP planning process Final EIS and ROD (BLM 2016b). As noted in the 2016 Final EIS, all Bi-State sage-grouse habitat is considered high priority, so there is no delineation of “general” or “priority” habitat. This analysis only presents information on Bi-State sage-grouse habitat and assumes that all areas of Bi-State sage-grouse habitat are considered suitable habitat. All areas of Bi-State sage-grouse habitat are assumed occupied by Bi-State sage-grouse, therefore this analysis does not include discussion of occupied or unoccupied habitat areas. Information on Bi-State sage-grouse habitat areas has been developed through resource selection functions (RSF) spatial modeling (TAC 2012). The RSF habitat modeling synthesizes broadscale vegetation mapping, on-the-ground vegetation mapping, and telemetry data to identify and rank areas of habitat based on a continuum of highly used habitat areas to strongly avoided habitat areas within the Bi-State sage-grouse distinct population segment (DPS). The RSF modeling of range wide Bi-State sage-grouse habitat has been incorporated into both the BLM’s conservation effort to identify suitable habitat delineated in the Bi-State sage-grouse RMP planning process and through the USFWS identification of PACs in the 2013 Greater Sage-grouse Conservation Objectives Report (USFWS 2013c). The USFWS has defined PACs as the most important areas needed for maintaining Bi-State sage-grouse representation, redundancy, and resilience across the landscape.

Sage-grouse are a sagebrush (*Artemisia* spp.) obligate and depend on a variety of shrub and shrub-steppe vegetation communities throughout their lifecycle. During the spring breeding season, males gather at leks to perform courtship displays. Leks are areas of bare soil, short-grass steppe, windswept ridges, exposed knolls, or other relatively open sites that are within or adjacent to nesting habitat. An active lek is defined as a lek in which two or more male sage-grouse are observed for two or more years within a five-year period. Pending leks are defined as areas with two or more males observed only once in the last five years (BLM 2016b). Nesting habitat is characterized by sagebrush with an understory of native grasses and forbs that provides vertical and horizontal cover, herbaceous forage, and an adequate insect prey base. Bi-State sage-grouse move to mesic areas (e.g., non-wooded riparian communities, springs, seeps, upland meadows that receive moderate supply of moisture as well as margins of irrigated pastures and fields) in late summer. The onset of winter pushes Bi-State sage-grouse back to sagebrush stands, the selection of which is dependent on snow depth, availability of sagebrush above the snow provide cover, and topography. Migration between these habitats is highly variable, but Bi-State sage-grouse have the tendency to return to previously occupied seasonal habitat areas and migration corridors, especially nesting sites (USFWS 2020e).










### **Bi-State Sage-grouse Population Management Units**

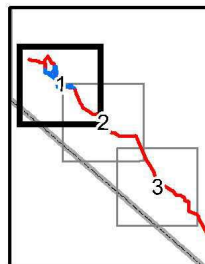
In an effort to monitor the Bi-State sage-grouse, six Population Management Units (PMUs) were established across its range (Figure 3-1 through Figure 3-3) (TAC 2012). The USFWS 2015 Greater Sage-grouse Conservation Objectives Team Report (USFWS 2015b) alternatively identified four PMUs across the Bi-State DPS. The analysis in this Final EIS/Proposed RMPA includes discussion of the PMUs originally designated in the 2012 Bi-State TAC. There are three PMUs—Pine Nut, Mount Grant, and White Mountain—within the temporary ROW area (Figure 3-1 through Figure 3-3, and Table 3-3).

The Pine Nut PMU has the smallest known number of Bi-State sage-grouse across all PMUs. Loss of population in this PMU appears to be likely with urbanization, historic grazing management, wildfire, increasing invasive species, infrastructure, and mineral development as the primary threats (USFWS 2020e). Within the Mount Grant PMU, woodland succession, historical and current mining activity, and recreational



**Legend**

- |   |  |
|---|--|
|  Substation  |  Priority Area for Conservation                 |
|  Proposed Action Transmission Line                     |  Bi-State Sage-grouse Proposed Critical Habitat |
|  Alternative Transmission Line                         |  Bi-State Sage-grouse Habitat                   |
|  Improved Access Road                                  |  |
|  New Access Road                                       |  |
|  Bi-State Sage-grouse Population Management Unit (PMU) |  |

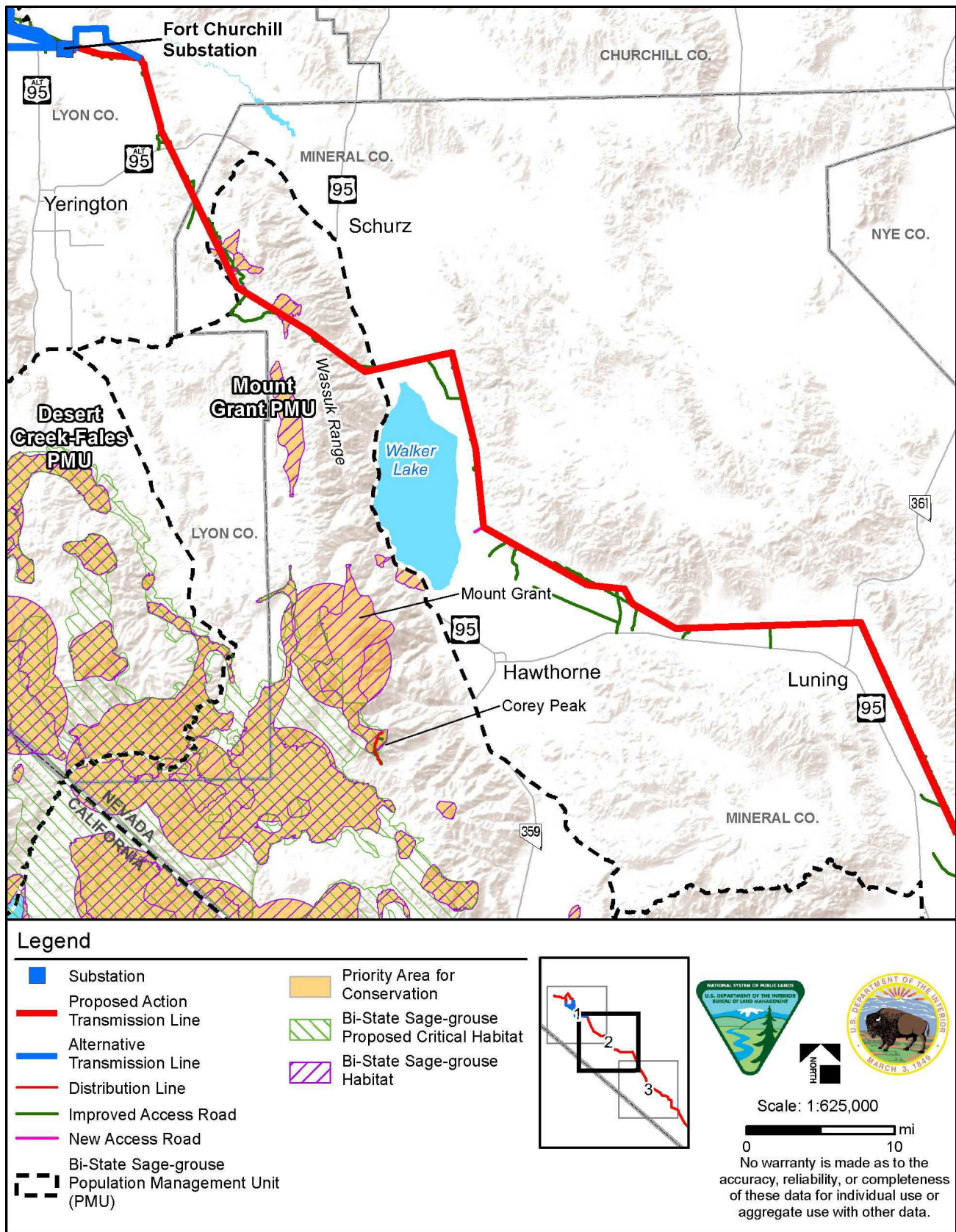


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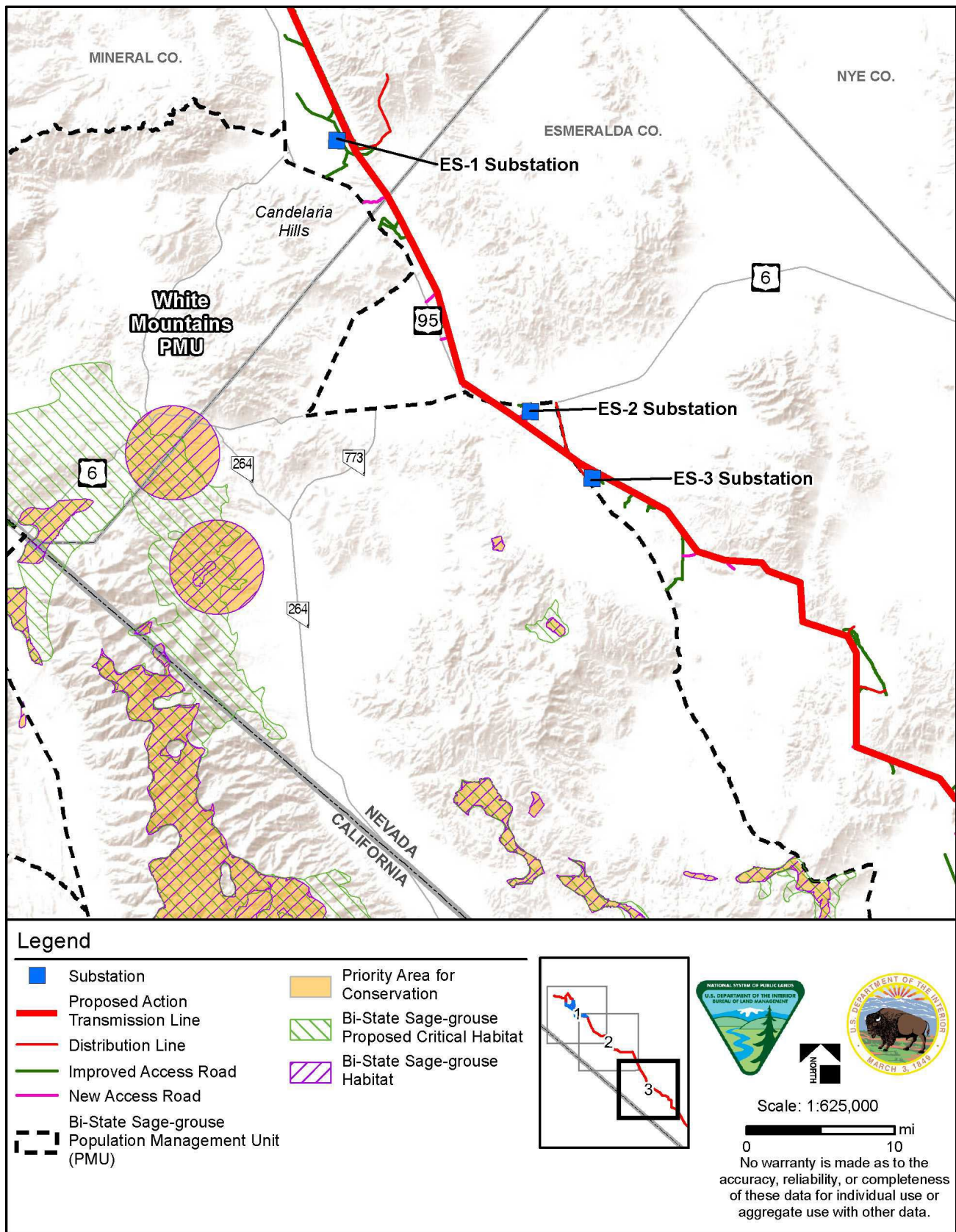


No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure 3-1. Bi-State Sage-grouse Habitat (1 of 3)**



**Figure 3-2. Bi-State Sage-grouse Habitat (2 of 3)**



**Figure 3-3. Bi-State Sage-grouse Habitat (3 of 3)**

off-highway vehicle (OHV) use has most negatively influenced bird distribution (TAC 2012; USFWS 2020e). The White Mountains PMU is the southernmost PMU within the Bi-State DPS. Historical and current distributions of Bi-State sage-grouse in the White Mountains are not well understood due to difficulty in accessing the area (USFWS 2020e). The GLWP area would cross the eastern boundary of the White Mountains PMU in an area greater than 10 miles from Bi-State sage-grouse habitat (Figure 3-3).

**Table 3-3. Estimated Acres of Bi-State Sage-grouse PMUs within the Temporary ROW Area by Landowner**

PMU	PMU Size (acres)	BIA (acres)	BLM (acres)	Private (acres)	Total <sup>a</sup> (acres)
Pine Nut	574,372	0.0	3,289.3	472.3	3,761.6
Mount Grant	699,079	25.5	2,171.0	0.0	2,196.5
White Mountains	1,753,875	0.0	747.1	25.9	773.1
<b>Total (acres)</b>	-	<b>25.5</b>	<b>6,207.5</b>	<b>498.3</b>	<b>6,731.2</b>

*Table Acronym(s):* BLM – Bureau of Land Management; DOD – Department of Defense; PMU – Population Management Unit; ROW – Right-of-way

*Table Note(s):* <sup>a</sup>Includes all proposed GLWP ROWs and facilities (transmission line, distribution lines, access roads, communication sites)

*Table Source(s):* BLM and NSMA 2021; NV Energy 2023; TAC 2012

### **USFWS Proposed Critical Habitat**

The USFWS has proposed designation of four critical habitat units representing areas that were occupied at the time of the proposed listing and contain the biological features essential to the conservation of the species (USFWS 2013c). Table 3-4 presents the total acreage of the two proposed critical habitat units and the acreage of each unit within the federally listed species wildlife analysis area for the Proposed Action. Figure 3-4 shows the proposed critical habitat location. Proposed critical habitat does not occur within the federally listed species wildlife analysis area for any of the other Action Alternatives.

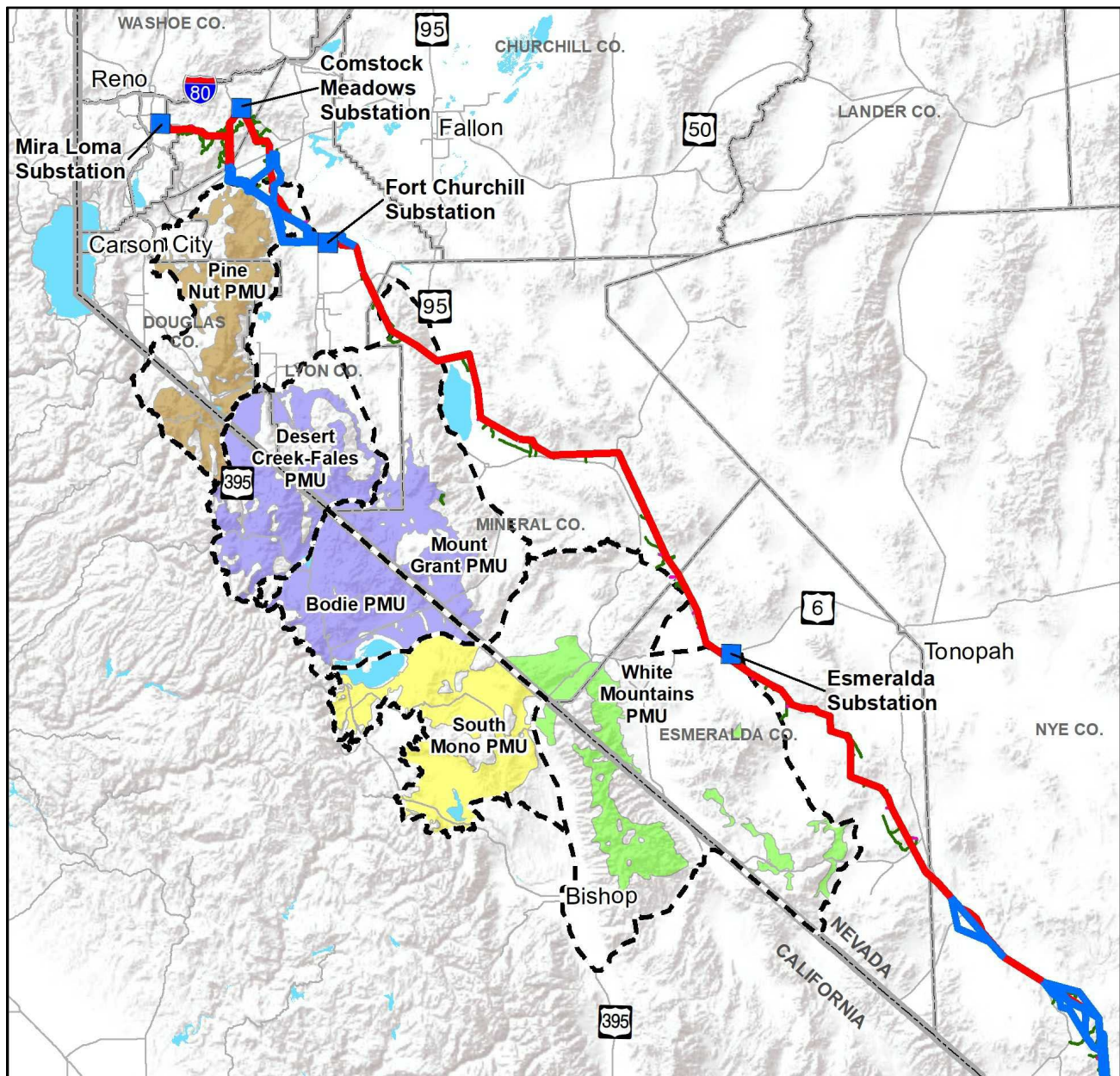
**Table 3-4. Estimated Acres of Proposed Critical Habitat for the Bi-State Sage-grouse within the Federally Listed Species Wildlife Analysis Area**

Unit #/Name	Unit Size (acres)	Federally Listed Species Wildlife Analysis Area (acres)	Associated PMU
Unit 1/Pine Nut	300,836	421.5	Pine Nut PMU
Unit 2/North Mono Lake	853,726	1,302.1	Desert Creek-Fales PMU, Bodie PMU, Mount Grant PMU
<b>Total (acres)</b>	<b>1,154,562</b>	<b>1,723.6</b>	-











*Table Acronyms:* PMU – Population Management Unit

### **3.1.3.2 Lahontan Cutthroat Trout**

The Lahontan cutthroat trout was listed as threatened under the ESA in 1975 (USFWS 1975) and a recovery plan for the species was established in 1995 (USFWS 1995b). Critical habitat has not been proposed or designated for this species. This fish is native to the Lahontan Basin of northern Nevada, northeastern California, and southeastern Oregon and can grow up to four-feet-long and weigh up to 40 pounds (USFWS 2022a). Lahontan cutthroat trout are found in freshwater lakes, rivers, and streams with cool flowing water and well-vegetated cover and stable stream banks; in areas with stream velocity breaks; and in relatively silt-free, rocky riffle-run areas. Optimally, cover should be available in at least 25 percent of the stream area (Nevada Division of National Heritage [NDNH] 2022b). In 2019, the USFWS released the Updated Goals and Objectives for the Conservation of Lahontan Cutthroat Trout (*Oncorhynchus clarkii henshawi*), which evaluated the current status and divided the range of the Lahontan cutthroat trout into

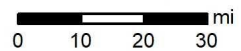


**Legend**

- |   |  |
|---|--|
|  Substation  |  Proposed Critical Habitat Unit<br>Unit #1 Pine Nut |
|  Proposed Action Transmission Line                     |  Unit #2 North Mono Lake                            |
|  Alternative Transmission Line                         |  Unit #3 South Mono Lake                            |
|  Improved Access Road                                  |  Unit #4 White Mountains                            |
|  New Access Road                                       |  |
|  Bi-State Sage-grouse Population Management Unit (PMU) |  |



Scale: 1:2,000,000



No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure 3-4. Bi-State Sage-grouse PMUs and Proposed Critical Habitat**

10 Management Units (MU) from the three Game Management Units outlined in the Recovery Act (USFWS 1995b). These 10 MUs are associated with the watersheds or distinct genetic populations within the historic range of the species; all are within or partially occur within Nevada (USFWS 2019c). In Nevada, this species currently occurs in terminal alkaline lakes (e.g., Lake Tahoe, Pyramid Lake), alpine lakes, meandering and mountain rivers (e.g., Carson, Walker, Truckee rivers), and small headwater tributary streams throughout northwestern Nevada (USFWS 2019c).

The federally listed species wildlife analysis area intersects the Lahontan cutthroat trout Pyramid-Truckee, Carson, and Walker MUs. The only suitable habitat for the species occurs in Carson River (Carson MU) and Walker River (Walker MU) (USFWS 2019a). No waters occupied by the Lahontan cutthroat trout occur within or near the federally listed species wildlife analysis area.

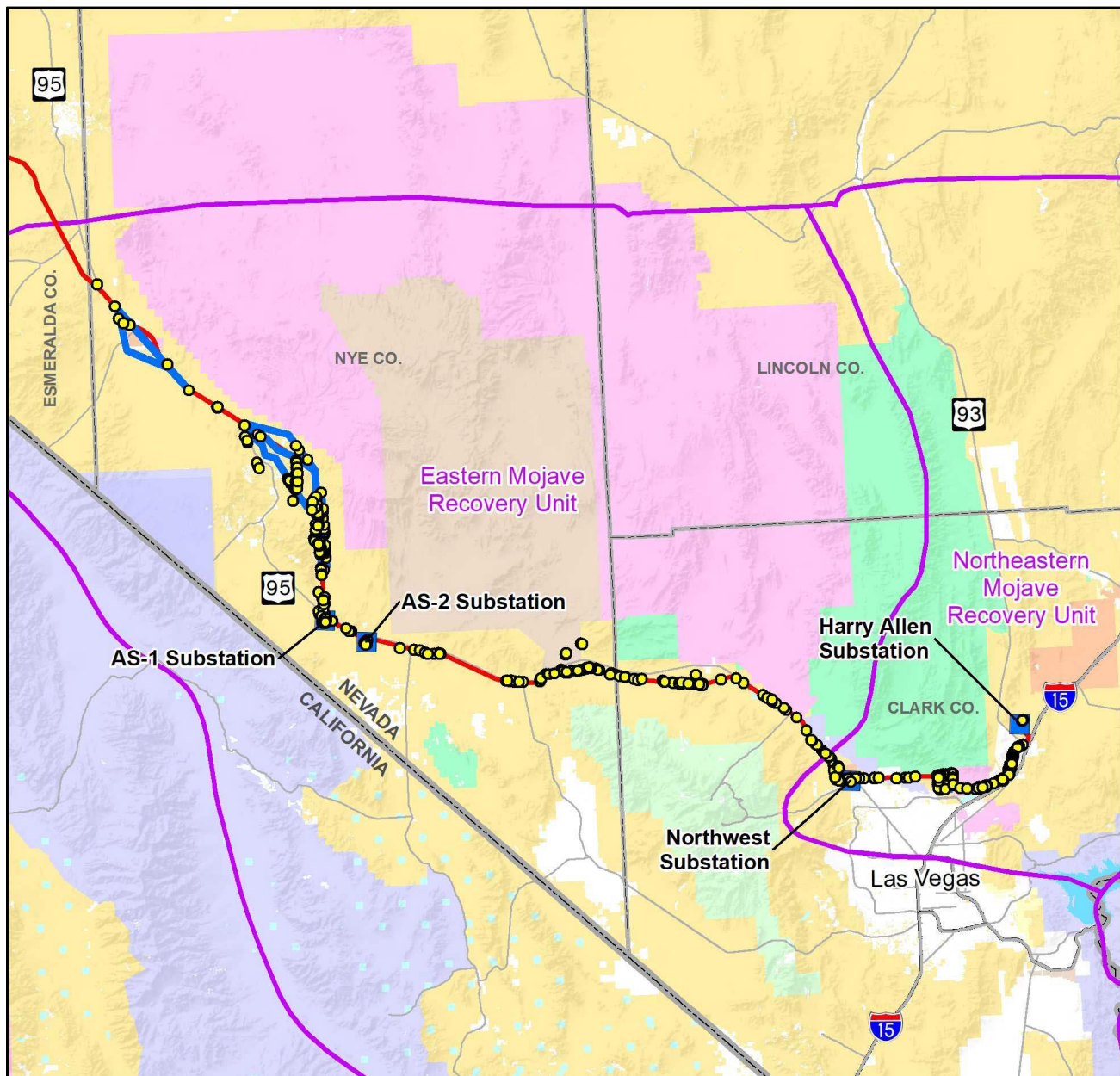
Within the Carson River, several isolated populations exist within the headwaters of the east and west forks of the Carson River, though these isolated populations are outside of the federally listed species wildlife analysis area. This species does not currently occur where the federally listed species wildlife analysis area intersects with the Carson River (historically the species occupied approximately 300 miles of the Carson River subbasin), it does however contain suitable habitat for the species. Vegetation along this portion of Carson River consists of a mosaic of interspersed, sparse patches of riparian woodlands separated by diverse shrub/scrub vegetation.

Several isolated fluvial populations of Lahontan cutthroat trout exist within the headwaters of the east and west forks of the Walker River and along a tributary to Walker Lake along the Wassuk Range. The two locations where the federally listed species wildlife analysis area crosses the Walker River are not known to contain populations of the Lahontan cutthroat trout. The river is perennial in both of these areas, lined with wetland herbaceous and shrub/scrub vegetation, contains suitable habitat for Lahontan cutthroat trout.

### **3.1.3.3 Mojave Desert Tortoise**

The Mojave desert tortoise was listed as threatened under the ESA in 1990 and includes the entire Mojave population of desert tortoises north and west of the Colorado River in Arizona, Utah, Nevada, and California (USFWS 1990a). A total of 6.4 million acres of critical habitat was designated in 1994, though none occurs within the federally listed species wildlife analysis area (USFWS 1994b). Genetics, morphology, behavior, ecology, and habitat use were used to define recovery units for six DPSs of the desert tortoise in the 1994 recovery plan (USFWS 1994a). The boundary of these units was refined in the revised recovery plan (USFWS 2011b). The federally listed species wildlife analysis area occurs within the Northeastern Mojave Recovery Unit, which encompasses 5.1 million acres extending from southwestern Utah/northwestern Arizona to Las Vegas/Las Vegas Wash and the Eastern Mojave Recovery Unit, which encompasses 10.7 million acres and spans the Nevada/California border (USFWS 2011b) (Figure 3-5).

The Mojave desert tortoise was listed in 1990 due to ongoing population declines from multiple human-caused activities throughout the species range (USFWS 1990a). Since the listing, the status of the species has changed, with substantial declines continuing in population numbers and densities (USFWS 2015b). Densities of Mojave desert tortoise declined range-wide more than 32 percent between 2004 and 2014 (Allison and McLuckie 2018; USFWS 2015b). Data collected since 2014 indicates that adult Mojave desert tortoise densities continue to decline across their range (USFWS 2015b, 2016, 2018, 2019b, 2020d, 2022b, 2022c). Mojave desert tortoise population numbers are also decreasing, with an estimated 37 percent decrease in abundance range-wide between 2004 and 2014. Abundance in the Eastern Mojave Recovery Unit declined by 67 percent. Abundance increased in the Northeastern Mojave Recovery Unit by



**Legend**

- |                                      |                              |
|--------------------------------------|------------------------------|
| Proposed Action Transmission Line    | Bureau of Reclamation        |
| Alternative Transmssion Line         | Department of Defense        |
| Substation                           | US Fish and Wildlife Service |
| Tortoise Survey Observation          | US Forest Service            |
| Mojave Desert Tortoise Recovery Unit | Indian Reservation           |
| Bureau of Land Management            | National Park Service        |
| Department of Energy                 | State                        |
|                                      | Private                      |
|                                      | Water                        |



Scale: 1:1,500,000

0 5 10 15 20 mi

No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure 3-5. Mojave Desert Tortoise Recovery Units and GLWP 2021 and 2022 Survey Observations**



270 percent between 2004 and 2014 (Allison and McLuckie 2018). A relatively small overall increase in the number of adult Mojave desert tortoises was identified in 2014 despite the increasing population trend of adults in the Northeastern Mojave Recovery Unit combined with Mojave desert tortoise's low ability to tolerate additional stress (Allison and McLuckie 2018; USFWS 2011b).

### **Mojave Desert Tortoise Habitat**

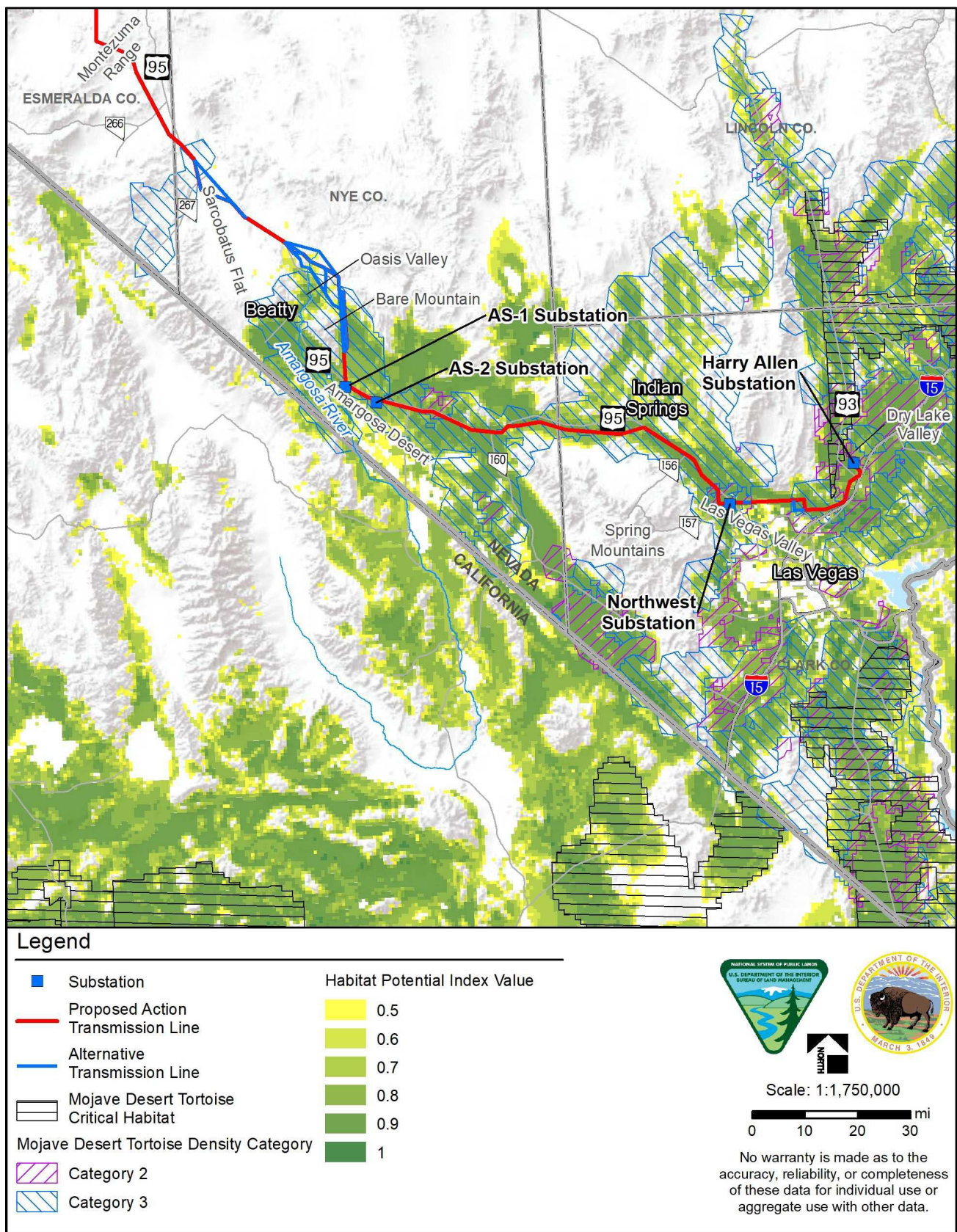
In the southern and western Nevada portions of the Mojave Desert, Mojave desert tortoises are generally found in creosote bush scrub communities of flats, valley bottoms, alluvial fans, and bajadas but may occasionally utilize rocky slopes and blackbrush scrub. Mojave desert tortoises in this area are active in the spring, late summer, and early autumn because this region receives up to 40 percent of its annual rainfall in the summer supporting two distinct annual floras on which Mojave desert tortoises forage. In this area, Mojave desert tortoises feed on summer and winter annuals, cacti, perennial grasses, and herbaceous perennials (USFWS 2011b). They dig burrows (usually located under shrubs) and den in caliche caves in bajadas, washes, or caves in sandstone rock outcrops for winter hibernation and summer estivation, which consists of prolonged dormancy of the species during hot or dry periods (USFWS 2011b, 2019a).

Two GIS models were used to identify Mojave desert tortoise habitat within the federally listed species wildlife analysis area: 1) United States Geological Survey (USGS) habitat potential index model (Nussear et al. 2009) which uses values from 0 to 1, with 0 indicating low potential value and 1 indicating high potential value of suitable habitat; and 2) tortoise density model prepared for the Mojave Desert Initiative Rapid Assessment (MDIRA) identifying areas with higher historic Mojave desert tortoise densities and high-quality habitat (BLM 2021b). Based on these two models, Mojave desert tortoise habitat occurs throughout most of the federally listed species wildlife analysis area within Clark and Nye counties (Figure 3-6).

### **Mojave Desert Tortoise Surveys**

Mojave desert tortoise surveys were conducted for the GLWP from September 2021 through December 2023. Existing access roads that would not require improvements were not included in the survey. Land not authorized for surveys by the landowners included the DOD lands and Nevada correctional facilities. For areas not surveyed, previous historic survey results and observations were used to evaluate tortoise presence using data obtained from NDOW (2024) and NDNH (2021b). The NNSS was not included in the surveys because NNSS biologists supplied the BLM with adequate population data for the sections of the GLWP situated on the NNSS (2021).

Survey results are documented in the Mojave Desert Tortoise Survey Report (Monks and Logan Simpson 2024). The survey area covered approximately 31,037 acres for the Proposed Action and approximately 10,658 acres for the remaining Action Alternatives (Monks and Logan Simpson 2024). Mojave desert tortoise surveys were conducted according to the survey protocol identified in Preparing for any Action that may occur within the Range of the Mojave Desert Tortoise (*Gopherus agassizii*) (USFWS 2019a). The linear GLWP components (i.e., transmission, distribution, and access road) were surveyed using the Linear Project Survey protocol with 33-foot wide belt transects every 328 feet. The non-linear GLWP components (construction yards, substations, microwave sites, and amplifier sites) were surveyed using the Small Project Survey protocol with belt transects spaced 33 feet apart to obtain 100 percent survey coverage (USFWS 2019a). The majority of the survey (98 percent) was conducted using the Linear Project Survey protocol and the remainder of the survey used the 100 percent Small Project Survey protocol.



**Figure 3-6. Mojave Desert Tortoise Habitat Suitability**

The results of the Mojave desert tortoise surveys are presented in Table 3-5 for the Proposed Action, Table 3-6 for the other Action Alternatives, and are shown in Figure 3-6. Many of the Mojave desert tortoise observations for the Action Alternatives overlap with the Proposed Action or between Action Alternatives. The entire survey for the Proposed Action and Action Alternatives observed a total of 18 live adult Mojave desert tortoises, 499 Mojave desert tortoise burrows (385 Burrow Classes 1, 2, and 3), 32 Mojave desert tortoise carcasses, and Mojave desert tortoise sign at 19 locations.

**Table 3-5. Summary of Mojave Desert Tortoise Survey Observations for the Proposed Action Survey Area**

Observation Type <sup>a</sup>	BLM	Nevada State Land	Desert NWR	Private	NPS	Tribal Land	DOD	NNSS <sup>b</sup>	Total
Live Adult Tortoise	6	-	-	-	-	1	2	4	13
Burrow Class 1	44	-	5	-	1	3	7	-	60
Burrow Class 2	143	1	3	6	5	16	17	-	191
Burrow Class 3	52	-	1	4	2	4	7	-	70
Burrow Class 4	44	-	1	-	2	-	-	-	47
Burrow Class 5	41	-	-	-	-	-	-	-	41
Tortoise Carcass	23	-	1	2	-	1	2	-	29
Tortoise Sign	13	-	-	4	-	-	2	-	19
<b>Total</b>	<b>366</b>	<b>1</b>	<b>11</b>	<b>16</b>	<b>10</b>	<b>25</b>	<b>37</b>	<b>4</b>	<b>470</b>

*Table Acronym(s):* BLM – Bureau of Land Management; DOD – Department of Defense; NNSS – Nevada National Security Site; NPS – National Park Service; NWR – National Wildlife Refuge

*Table Note(s):* <sup>a</sup>Burrow Class Legend: Class 1 – currently active, with tortoise or recent tortoise sign; Class 2 – good condition, definitely tortoise, no evidence of recent use; Class 3 – Deteriorated condition, definitely tortoise, no evidence of recent use; Class 4 – Deteriorated condition, possibly tortoise; Class 5 – Poor condition, possibly tortoise

<sup>b</sup>Data provided by NNSS (NNSS 2021)

**Table 3-6. Summary of Mojave Desert Tortoise Survey Observations for the Transmission Action Alternatives Survey Area**

Observation Type <sup>a</sup>	Losee Trans. Alt. A	Scotty's Junction Trans. Alt. A	Beatty Trans. Alt. A	Beatty Trans. Alt. C	Beatty Trans. Alt. G	Beatty Trans. Alt. K	Beatty Trans. Alt. L	TUSK Trans. Alt. B
Live Tortoise	-	-	-	-	1	-	4	-
Burrow Class 1	3	-	11	11	11	11	3	1
Burrow Class 2	5	-	18	19	30	27	2	2
Burrow Class 3	1	-	7	7	9	13	8	1
Burrow Class 4	1	-	8	9	8	7	7	1
Burrow Class 5	-	1	4	5	2	3	4	-
Tortoise Carcass	1	-	3	3	3	3	1	-
<b>Total</b>	<b>11</b>	<b>1</b>	<b>51</b>	<b>54</b>	<b>64</b>	<b>64</b>	<b>29</b>	<b>5</b>

*Table Acronym(s):* Alt. – Alternative; Trans. – Transmission; TUSK – Tule Springs National Monument

*Table Note(s):* Alternatives not included in this table had no tortoise observations or are not analyzed in detail in this Final EIS/Proposed RMPA. Burrow Class Legend: Class 1 – currently active, with tortoise or recent tortoise sign; Class 2 – good condition, definitely tortoise, no evidence of recent use; Class 3 – Deteriorated condition, definitely tortoise, no evidence of recent use; Class 4 – Deteriorated condition, possibly tortoise; Class 5 – Poor condition, possibly tortoise.

<sup>a</sup>Data was provided by AngloGold Ashanti (Environmental Resource Management 2024). Surveys consisted of 100 percent coverage protocol surveys. Data was extrapolated from 100 percent coverage surveys to reflect linear protocol surveys to provide similar comparison to the Proposed Action and other Action Alternatives.

#### **3.1.3.4 Mount Charleston Blue Butterfly**

The Mount Charleston blue butterfly was listed as endangered under the ESA on September 19, 2013 (USFWS 2013b). The Draft Recovery Plan was released to the public on May 7, 2021, although, a finalized version of the document has yet to be completed (USFWS 2021). Critical habitat was designated for the Mount Charleston blue butterfly in 2015 (USFWS 2015a).

The Mount Charleston blue butterfly is a distinct subspecies of the wider-ranging Shasta blue butterfly (*Icaricia [Plebejus] shasta*); currently seven subspecies of Shasta blue butterfly are recognized. The species is known only to occur in the high elevations of the Spring Mountains in Clark County. Specifically, the species is only distributed within the Spring Mountains NRA of the Humboldt-Toiyabe National Forest along the upper ridges in the Mount Charleston Wilderness, Upper Lee Canyon, and Upper Kyle Canyon (USFWS 2013b). Suitable habitat for the species includes open areas along alpine flat ridgetops, gently sloping hills, or meadows at elevations above 8,200 feet, although individuals have been documented at 6,000 feet. The Mount Charleston blue butterfly requires areas that support their primary larval host plants Torrey's milkvetch (*Astragalus calycosus* var. *calycosus*), Kern plateau milkvetch (*Astragalus lentiginosus* var. *kernensis*), and broadkeel milkvetch (*Astragalus platytropis*) as well as other nectar plants such as Clokey's fleabane (*Erigeron clokeyi*), Lemmon's goldflower (*Hymenoxys lemmonii*), and *Aster* sp. The typical breeding period for the species is early July to mid-August with a peak in late July, although the subspecies has been observed as early as mid-June and as late as mid-September (USFWS 2013b).

The federally listed species wildlife analysis area includes the Spring Mountains, which occurrences of the species have been documented within the Mount Charleston Wilderness, Upper Lee Canyon, and Upper Kyle Canyon (NDNH 2023). Furthermore, the federally listed species wildlife analysis area includes approximately 9.33 acres of designated critical habitat for the species (USFWS 2015a).

#### **3.1.3.5 Northwestern Pond Turtle**

The northwestern pond turtle was proposed for listing as threatened under the ESA in 2023 (USFWS 2023a). Due to the lack of sufficient data to perform required analyses, the USFWS concluded that the designation of proposed critical habitat for the northwestern pond turtle is not determinable at this time (USFWS 2023a). The species is omnivorous, consuming a wide variety of food items such as small aquatic invertebrates (insect larvae) and vertebrates (fish and amphibians), carrion, and plant material (Bury 1986; Holland 1994). The habitat requirements for the species includes: 1) aquatic features such as ponds, lakes, wetlands, and slow-moving streams/rivers for breeding, overwintering, sheltering, and dispersal; 2) basking sites that allow for thermoregulation; and 3) terrestrial or upland features adjacent to the aquatic habitat for nesting, overwintering and aestivation, and dispersal and connectivity between populations. The species' elevation range is approximately 6,500 feet (USFWS 2023a). This turtle's range includes Washington, Oregon, Nevada, and northern and central California. In Nevada, the species is currently known to occur along areas of the Carson and Truckee rivers (USFWS 2023a) and has been predominantly documented within the Truckee River near the town of Patrick, and the Carson River near Carson City (NDOW 2024).

The federally listed species wildlife analysis area intersects both the Carson and Truckee rivers; however, the temporary ROW areas for the Action Alternatives do not cross over the Truckee River. This species does not currently occur where the federally listed species wildlife analysis area intersects with the Carson River; the nearest record of the species occurs approximately 12 miles upstream from where the Action Alternatives cross over the Carson River. The transmission line crossings of the Carson River are within the

main channel of the river system. These river crossings feature a mix of riparian woodlands interspersed with shrub/scrub vegetative communities along its banks. No backwater sloughs, marshes, or other wetland features with various sandy riverbanks occur within these river crossings. Therefore, there is a low potential for the species to occur at these Carson River Crossings due to the lack of wetland features (e.g., sloughs, marshes, lakes, ponds) along this river section and the absence of species occurrence data within this area.

### **3.1.3.6 Southwestern Willow Flycatcher**

The southwestern willow flycatcher is a riparian obligate species and was listed as endangered within its entire range under the ESA in 1995 (USFWS 1995a). Critical habitat was designated in 2013, though none occurs within the federally listed species wildlife analysis area (USFWS 2013a). A recovery plan was established for the southwestern willow flycatcher in 2002 (USFWS 2002). In Nevada, critical habitat is limited to portions of the Virgin River above its confluence with the Muddy River in Clark County, Ash Meadows NWR in Nye County, and Upper Pahranaagat Lake in Lincoln County (USFWS 2013a).

Southwestern willow flycatchers are small, brownish birds, usually less than six inches in length, and are found at elevations below 8,500 feet. This flycatcher winters in Central America, migrates north to breed in the US, and feeds primarily on flying insects. Nesting requires dense riparian tree and shrub communities (i.e., cottonwood [*Populus*]/willow [*Salix*] and tamarisk [*Tamarix* spp.] vegetation) alongside streams, rivers, or other wetlands. This species is not typically found nesting in areas without willows or tamarisk (USFWS 2013a). Migrating flycatchers use a variety of riparian habitats or patches (small areas of riparian vegetation) not typically suitable for nesting (USFWS 2003, 2013a). In Nevada, documented breeding populations of the southwestern willow flycatcher are known to occur in the Colorado River system and its tributaries in the southeastern portions of the state (Clark, Lincoln, and Nye counties), specifically the Virgin River, Muddy River, Amargosa River at Ash Meadows NWR, Meadow Valley Wash, and the White River drainage in the Pahranaagat Valley (USFWS 2002).

The nearest occupied breeding habitat to the federally listed species wildlife analysis area is at the Ash Meadows NWR, approximately eight miles south of the temporary ROW area and approximately five miles east of State Route (SR) 373. The federally listed species wildlife analysis area does occur near areas of suitable habitat for the southwestern willow flycatcher along the headwaters of the Amargosa River. The suitable riparian habitat along the headwaters of the Amargosa River supports species occupancy (NDOW 2023) and contains habitat components that may support breeding pairs (USFWS 2002).

### **3.1.3.7 Western Yellow-billed Cuckoo**

The western yellow-billed cuckoo (yellow-billed cuckoo) was determined by USFWS to be a distinct population segment and was listed as threatened under the ESA in 2014 (USFWS 2014a). Critical habitat for this species was designated in 2021, though none occurs within the federally listed species wildlife analysis area (USFWS 2023c). A recovery plan has not been established for this species.

The yellow-billed cuckoo is a medium-sized, slender bird (10 inches to 12 inches long) that winters in Central and South America, migrates north to breed from northern Mexico to southern Canada, and feeds on large insects such as caterpillars and grasshoppers. This species is a riparian obligate associated with cottonwood-willow dominated riparian habitat, but it has also been found nesting in tamarisk, mesquite, seep willow, and coyote willow. Yellow-billed cuckoos breed in lowland riparian woodlands below 7,000 feet that contain a variable combination of Fremont cottonwood (*Populus fremontii*), willow,

mesquite (*Prosopis*), velvet ash (*Fraxinus velutina*), Arizona walnut (*Juglans major*), and tamarisk (Martin 2005). Nesting home ranges vary from 25 acres to over 100 acres in closed-canopy broad-leaved riparian vegetation. Yellow-billed cuckoos are long-distance migrants and arrive on the breeding grounds beginning in mid- to late-May, breed in June to August, and depart breeding grounds by mid-September (Johnson et al. 2008).

The yellow-billed cuckoo is rare in Nevada, but there are small areas of suitable habitat within the state. The final rule designating critical habitat noted that the only known areas of confirmed breeding habitat in Nevada are along the California border (Lake Tahoe, Washoe Lake, and Topaz Lake) and the Arizona border along the Lower Colorado River, although NDOW has detected breeding pairs at Warm Springs, Muddy River, upper Pahranaagat Lake, and the Virgin River (Johnson et al. 2008; USFWS 2023c). In addition to riparian woodland habitat, yellow-billed cuckoos also utilize remnant riparian habitats present within the state during migration. This species has been documented within 10 miles of the federally listed species wildlife analysis area at the Lahontan Reservoir (observed in 1988 and 1996); along the Amargosa River near Beatty (observed in 2000, located approximately 0.5 miles east of US 95, and approximately 6 miles west of the temporary ROW area); within the TUSK along Las Vegas Wash (3 miles north of the temporary ROW area); and in North Las Vegas (observed in 1999, located approximately 5 miles south of the temporary ROW area) (NDNH 2022a; NDOW 2024).

The NDOW and USFWS indicate observations and potential breeding along the Carson and Walker rivers near the federally listed species wildlife analysis area; however, records of these observations were not available. Detections of yellow-billed cuckoo along the Amargosa River may indicate potential breeding habitat in this area as well. The habitat in this area is suboptimal and does not provide the dense riparian vegetation typically required for yellow-billed cuckoo breeding; these detections are more likely to be yellow-billed cuckoos migrating through the area. A review of the Carson, Walker, and Amargosa river areas indicates suitable habitat is present for both breeding and migration for the yellow-billed cuckoo, but riparian vegetation is sparse and the habitat is marginal for breeding. Incidental occurrences of migrating and foraging yellow-billed cuckoo may occur within the federally listed species wildlife analysis area along streams, rivers, and patches of riparian vegetation.

### **3.1.3.8 Yuma Ridgway's Rail**

The Yuma Ridgway's rail (previously called the Yuma clapper rail) was listed as endangered under the ESA in 1967 (USFWS 1967). The recovery plan was finalized in 1983 and portions of the recovery actions were initiated over the ensuing years. In 2007, the USFWS initiated efforts to revise the recovery plan to incorporate new information, and a draft recovery plan was published in 2010 (USFWS 2010). No critical habitat has been proposed or designated for this species.

The Yuma Ridgway's rail is a wetland obligate species and is one of the smaller subspecies of clapper rail ranging in size from 12 to 16 inches. Its present range includes portions of Arizona, California, and Nevada, with the largest populations along the Lower Colorado River. The Yuma Ridgway's rail is a brownish water bird with long legs and a short tail that lives in freshwater marshes dominated by cattail (*Typha* spp.) and bulrush (*Scirpus* spp.) with a mix of riparian tree and shrub along the shoreline of marshes. This species typically feeds on crustaceans, insects, and fish. Optimal Yuma Ridgway's rail habitat generally consists of a combination of emergent vegetation six-feet-high or more; shallow open water areas with minimal daily water fluctuation; open dry ground between water, vegetation, or marsh edge for foraging and movement; and a band of riparian vegetation on higher ground for cover. Breeding includes pair bonding in February to March, nesting beginning in March with a peak in May and June, and the season typically

ends by the end of July. Yuma Ridgway's rail nests are constructed on a platform of vegetation raised three to six inches above the ground and concealed in dense marsh vegetation (USFWS 2010).

Yuma Ridgway's rail occurs in the Lower Colorado River from the southern border with Mexico to the upper end of Lake Mead, in the Virgin River, and along the Muddy River within the Overton WMA (USFWS 2010). A desktop review of aerial imagery and landcover data (Southwest Regional Gap Analysis Project [SWReGAP] Lowry Jr. et al. 2005; 2021) determined that suitable wetland/riparian breeding habitat for this species does not occur within the federally listed species wildlife analysis area. The year-round status of this species in southern Nevada is not well-known. However, recent research using satellite transmitters on Yuma Ridgway's rails suggests this species can undertake long migrations. Movement of these birds is not limited to river corridors. While this species has been considered non-migratory, some Yuma Ridgway's rails conduct fall migratory movements between the US and Mexico, migrating long distances over inhospitable terrain (Harrity and Conway 2020). This indicates that while breeding habitat does not occur in the federally listed species wildlife analysis area, Yuma Ridgway's rails may migrate over the analysis area.

### **3.1.3.9 Federally Listed Plant Species**

There are seven plant species that may occur within the federally listed species plant analysis area: the Amargosa niterwort, Ash Meadows gumplant, Ash Meadows blazingstar, Ash Meadows ivesia, Ash Meadows milkvetch, Ash Meadows sunray, and spring-loving centaury (collectively referred to as the Ash Meadows plant species). The GLWP BA (BLM 2024c) and BE (BLM 2024b) also address these plants in detail.

The seven Ash Meadows plant species were federally listed as threatened or endangered and critical habitat was designated in 1985 for each species (USFWS 1985). A recovery plan was established for these species in 1990 (USFWS 1990b). Threats to the species include: construction; agriculture developments; peat mining; alternation of springs, stream channels, and storm water drainage; and trampling by free-roaming horses and OHV activities (USFWS 1990b).

The Ash Meadows plant species each have varying habitat requirements. The Amargosa niterwort is limited to highly alkaline, moist, salt-encrusted clay soils (USFWS 1985). The Ash Meadows gumplant thrives on moist, salt-encrusted, highly alkaline soils in saltgrass meadows along streams and pools, occasionally occurs in clay soils in drier areas, and is often found in association with spring-loving centaury (USFWS 1985). The Ash Meadows blazingstar inhabits dry sandy or saline clay soils along canyon washes, alkaline mounds near spring areas and can also be found in undisturbed soils of arroyos (Mozingo and Williams 1980; USFWS 1985). Ash Meadows ivesia depends on saturated soils in saline seep areas of light-colored clay uplands, can also be found in depressions where soil moisture stays high due to perched water fed by springs and seeps, and is often found in saltbrush vegetation communities (Mozingo and Williams 1980; USFWS 1985). The Ash Meadows milkvetch inhabits flats, slopes, and knolls of hard, dry alkaline clays at elevations between 2,200 feet to 2,380 feet (Mozingo and Williams 1980). The Ash Meadows sunray grows in dry washes containing white saline soils of silt or clay and hard limestone outcrops and land with wetland features such as spring sand seeps at elevations from 2,200 feet to 2,360 feet (USFWS 1985, 2011a). The spring-loving centaury inhabits moist-to-wet clay soils along stream banks or seeps and riparian areas but can also be found in upland areas at elevations between 2,070 feet to 2,320 feet (Mozingo and Williams 1980; USFWS 2009b).

Surveys were conducted for the Ash Meadows plant species in September to October 2023. Surveys for the spring-loving centaury were conducted separately from the other six Ash Meadows plant species and

included 100 percent coverage surveys on the approximately 858 acres that were identified as potential habitat during desktop review (BIO-WEST 2024). The spring-loving centaury surveys identified approximately 8.5 acres of suitable habitat not currently occupied by spring-loving centaury within the federally listed plant species analysis area for all Action Alternatives. The survey also identified less than 0.1 acres of occupied habitat of a small population of spring-loving centaury (approximately 10 individuals) along Beatty Transmission Alternative G (Figure 3-7). Currently, this population is under genetic review to determine if the population is spring-loving centaury or another closely related species (personal communication V. Imhoff 2023a).

Surveys for the remaining Ash Meadows plant species were conducted in October 2023, outside the blooming period for the target plants. The surveys were conducted to identify areas where suitable habitat is present along the GLWP temporary ROW area for each of the plants. An initial desktop review was conducted that identified approximately 945 acres of potential habitat within the federally listed plant species analysis area. The habitat surveys involved ground survey of the approximately 945 acres of potential habitat and botanists identified approximately 601 acres of suitable habitat for the Ash Meadows blazingstar, Ash Meadows ivesia, and Ash Meadows sunray and approximately 503 acres of high potential habitat for the Ash Meadows milkvetch within the federally listed plant species analysis area (Figure 3-8) (Silver Sage Eco 2023c). No suitable habitat was found for the Amargosa niterwort and the Ash Meadows gumplant within the federally listed plant species analysis area (Silver Sage Eco 2023c).

### **3.1.4 Environmental Consequences**

#### **3.1.4.1 Direct and Indirect Impacts from No Action Alternative**

It is anticipated that under the No Action Alternative, the current uses and trends for the resources would continue to occur. There would be no impacts to federally listed resources attributed to the construction, O&M, and decommissioning of the GLWP under the No Action Alternative.

#### **3.1.4.2 Direct and Indirect Impacts from Proposed Action**

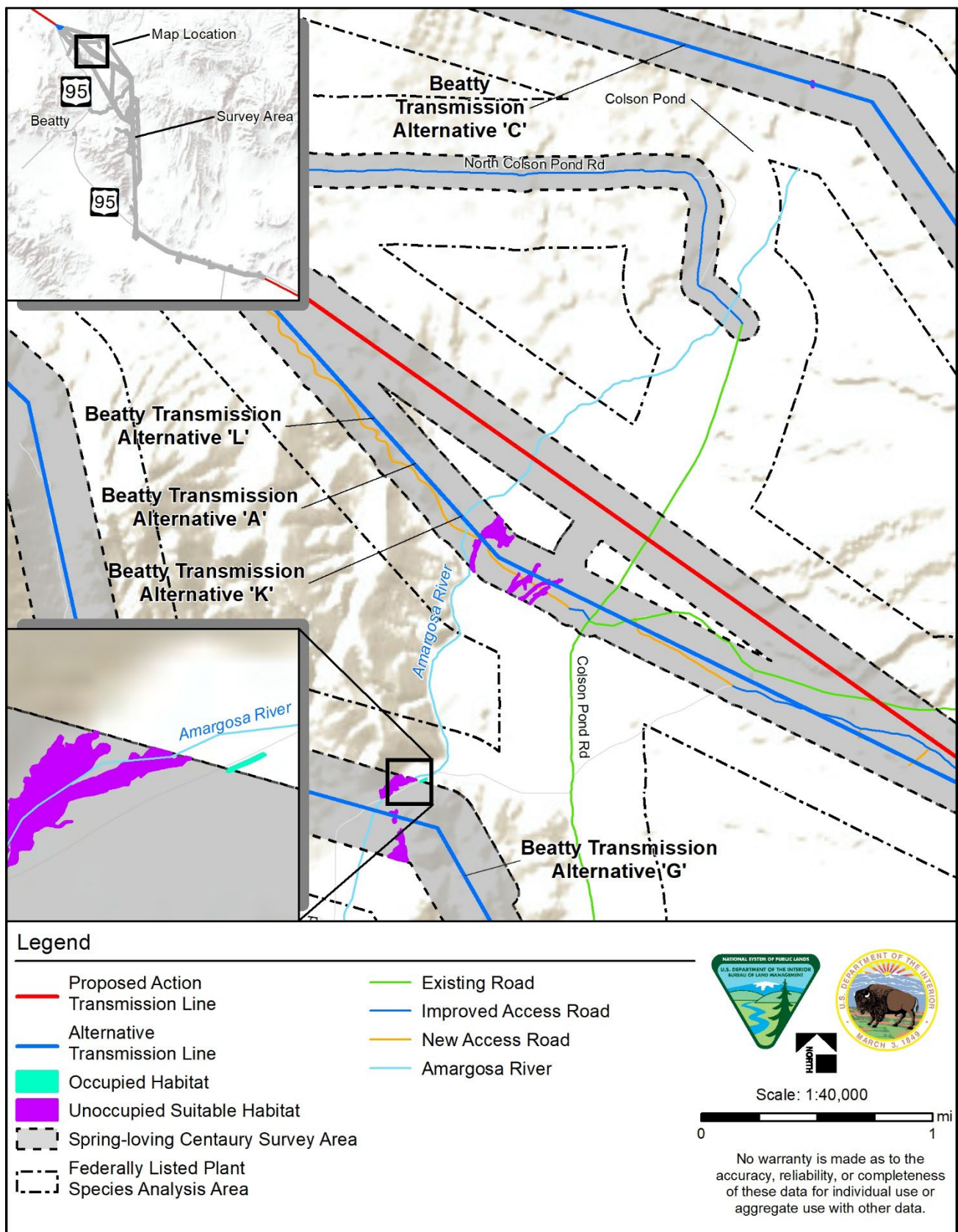
##### **Bi-State Sage-grouse**

Table 3-7 presents a summary of the types of impacts resulting from the Proposed Action (as well as the Carson River Transmission Alternatives A and C) that would cross Bi-State sage-grouse habitat or areas of known populations. There are EMMs that would be implemented to minimize potential effects on Bi-State sage-grouse (Appendix C. EMMs BSSG-1 through BSSG-16). Additionally, the GLWP includes implementation of the Raven Management Plan (Appendix G) that would also minimize impacts on Bi-State sage-grouse.

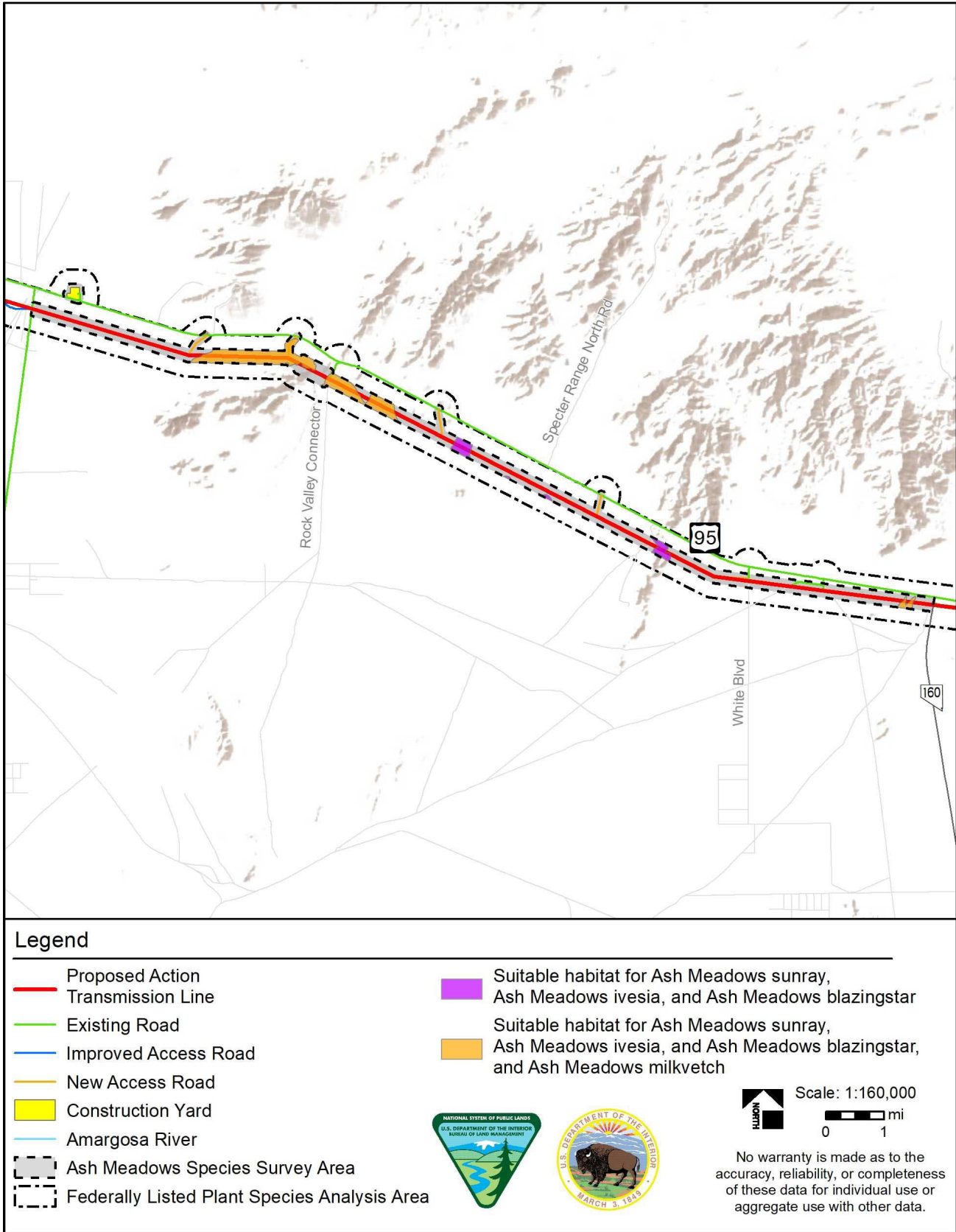
##### **Construction**

Impacts to the Bi-State sage-grouse associated with the construction of the Proposed Action would include habitat loss, degradation, and fragmentation, and noise and visual disturbances. Vegetation clearing would remove or modify Bi-State sage-grouse habitat and birds may also be injured or killed from collisions with vehicles throughout the construction phase. Disturbed and altered Bi-State sage-grouse habitat would likely exhibit reduced resilience and overall habitat value to Bi-State sage-grouse (Knick et al. 2003; Miller et al. 2011). Areas of temporary ground disturbance would be restored following the completion of construction activity. Regeneration of pre-disturbance vegetation conditions is anticipated to require several years or decades due to the slow growth rates of sagebrush communities. Not all areas previously





**Figure 3-7. Spring-loving Centaury Survey Results**



**Figure 3-8. Ash Meadows Plant Species Survey Results**

composed of sagebrush dominant communities may be restored due to permanent shifts in nutrient cycles, topsoil conditions (including cryptobiotic soil crusts), and site hydrology (Knick et al. 2003).

Impacts to individual Bi-State sage-grouse from noise, nighttime lighting, fugitive dust, and human activity would extend further than the actual disturbance footprint and may extend to lands outside of the temporary ROW areas. These types of disturbances may result in physiological and behavioral changes, including avoidance of affected areas throughout the three-year construction duration.

**Table 3-7. Impacts to Bi-state Sage-grouse and Bi-State Sage-grouse Habitat from the Proposed Action and Carson River Transmission Alternatives A and C**

<b>Impact Indicator</b>	<b>Impact</b>	<b>Phase</b>
Loss of Birds	Mortalities resulting from electrocutions with energized components	O&M
Loss of Birds	Mortalities resulting from collisions with components, including transmission towers, conductors, lines, guy wires, or fences	Construction, O&M, Decommissioning
Loss of Birds	Mortalities resulting from collisions with construction equipment and vehicles	Construction, O&M, Decommissioning
Loss of Birds	Mortalities resulting from destruction of nests	Construction, O&M, Decommissioning
Loss of Birds	Mortalities resulting from nest abandonment due to disturbance	Construction, O&M, Decommissioning
Destruction, modification, or curtailment of habitat or range	Loss of habitat resulting from construction of tower sites, access roads, terminal locations, and other components	Construction, O&M, Decommissioning
Destruction, modification, or curtailment of habitat or range	Fragmentation of Bi-State sage-grouse habitat due to the construction of new access roads, removal of vegetation at tower sites, increased electromagnetic fields, or introduction of tall structures, and ongoing operation of the GLWP components	Construction, O&M, Decommissioning
Destruction, modification, or curtailment of habitat or range	Degradation of Bi-State sage-grouse habitat and function	Construction, O&M, Decommissioning
Destruction, modification, or curtailment of habitat or range	General disturbance to Bi-State sage-grouse and disruption of breeding activities due to human presence and noise	Construction, O&M, Decommissioning
Destruction, modification, or curtailment of habitat or range	Decreased nest initiation, nest success, and recruitment resulting from disruption of foraging, seasonal migration, breeding (lekking), nesting, brood rearing, and wintering activities	O&M
Destruction, modification, or curtailment of habitat or range	Interruption or adjustments to seasonal Bi-State sage-grouse migrations and movements	O&M
Destruction, modification, or curtailment of habitat or range	Reduction of Bi-State sage-grouse habitat suitability resulting from the introduction and establishment of noxious weeds	O&M
Unauthorized Harvest	Increased unauthorized harvest resulting from increased access to Bi-State sage-grouse habitat via construction of new access roads	O&M
Predation	Potential for increased avian predation due to increased perching opportunity for raptor and corvids	O&M
Terrestrial predation	Potential for increased mammalian predation pressure resulting from habitat fragmentation and new predator movement corridors	O&M

*Table Acronym(s):* GLWP – Greenlink West Transmission Project; O&M – Operations and Maintenance

**Habitat Impacts within Mount Grant, Pine Nut, and White Mountains PMU**

In total, approximately 153.1 acres of Proposed Action permanent ROW and approximately 693.3 acres of temporary ROW would occur within Bi-State sage-grouse habitat within the Mount Grant PMU (Table 3-8). The Mount Grant PMU area of Bi-State sage-grouse habitat crossed by the Proposed Action would be sited within an existing WWEC consistent with siting criteria in the Land Use Plan Amendment for the Nevada and California Greater Sage-Grouse Bi-State Distinct Population Segment in the CCDO and TFO (BLM 2016a). Direct removal or modification of Bi-State sage-grouse habitat within the Mount Grant PMU would result from construction activities associated with new access roads, improvements to existing access roads, structures foundations, and from existing distribution line and access road improvements servicing the TV Hill microwave site near Corey Peak (Figure 3-3).

**Table 3-8. Estimated Proposed Action Temporary and Permanent ROW Areas in Bi-State Sage-grouse Habitat**

Component	Temporary ROW Area (acres)	Permanent ROW Area (acres)
Transmission Line Access Roads	51.5	22.7
Distribution Line Access Roads	36.9	9.3
Distribution Lines	36.1	18.0
Transmission Line	568.8	103.0
<b>Total</b>	<b>693.3</b>	<b>153.1</b>

Table Acronym(s): ROW – Right of way

No direct removal or modification of Bi-State sage-grouse habitat would occur within the Pine Nut and White Mountains PMUs under the Proposed Action. The nearest Bi-State sage-grouse habitat in the Pine Nut and White Mountains PMUs would be located approximately 1.3 miles and approximately 7.1 miles, respectively, from the Proposed Action (Table 3-9 and Figure 3-1 to Figure 3-3).

**Table 3-9. Proposed Action Transmission and Distribution Lines and Access Roads Estimated Distance from Bi-State Sage-grouse Habitat**

PMU	Distance from Transmission or Distribution Line to Bi-State Sage-grouse Habitat (miles)	Distance to New Access Road or to Existing Access Road Needing Improvement (miles)	Nearby Landmark
Pine Nut	1.3 (345-kV transmission line)	1.3 (existing access roads)	Churchill Canyon and Adrian Valley
Mount Grant	0.0 (525-kV transmission line)	0 (new and existing access roads)	Black Mountain
Mount Grant	0.0 (10-25 kV distribution line)	0 (new and existing access roads)	Corey Peak
White Mountains	7.1 (525-kV transmission line)	6.9 (new access road)	Piper Peak

Table Acronym(s): kV – Kilovolt; PMU – Population Management Unit

The Proposed Action in the Pine Nut PMU would split into the three 345-kV transmission lines for a total of approximately 41.3 miles (Figure 3-1). The 345-kV Mira Loma Transmission Line would be the closest to Bi-State sage-grouse habitat located approximately 1.4 miles away (refer to Figure 3-1). The habitat in this area is likely not high-quality since it has been previously disturbed and tower structures are currently present.

The Proposed Action within the Pine Nut and Mount Grant PMUs would be collocated with other transmission lines as summarized in Table 3-10. Approximately 2.1 miles of the Proposed Action transmission line would cross Bi-State sage-grouse habitat within an existing WWEC transmission corridor in the Mount Grant PMU (refer to Figure 3-1).

**Table 3-10. Estimated Miles of Proposed Action Transmission Line in Bi-State Sage-grouse Habitat and PMUs**

PMU	Miles of Bi-State Sage-grouse Habitat	Total PMU Miles (collocated transmission lines)
Pine Nut	0.0	15.1
Mount Grant	2.1	10.5
White Mountains	0.0	0.0
<b>Total</b>	<b>2.1</b>	<b>25.6</b>

Table Acronym(s): PMU – Population Management Unit

**Proposed Critical Habitat Impacts**

Temporary and permanent impacts to proposed critical habitat would occur within the Pine Nut Unit (#1) and North Mono Lake Unit (#2) resulting from the construction activities associated with the improvement of existing access roads and new distribution lines (refer to Figure 3-4). Surface disturbance acreages associated with access road improvements would be limited to widening of existing roads at the TV Hill microwave site. Implementation of EMM BSSG-13 (Appendix C) would require access road upgrades to be limited to the area necessary to accommodate construction activity, minimizing impacts from access road improvements. The transmission line ROW would not result in temporary or permanent impacts to proposed critical habitat because there would be no transmission lines crossing through proposed critical habitat. Table 3-11 presents the estimated acreages of permanent ground disturbance anticipated to occur within Bi-State sage-grouse proposed critical habitat under the Proposed Action.

**Table 3-11. Proposed Action Estimated Temporary and Permanent Disturbance in Bi-State Sage-grouse Proposed Critical Habitat<sup>a</sup>**

Unit #/ Name	Temporary Disturbance Access Road (acres)	Temporary Disturbance Distribution Lines (acres)	Permanent Disturbance Access Roads (acres)	Permanent Disturbance Distribution Lines (acres)	Total Temporary Disturbance (acres)	Total Permanent Disturbance (acres)
Unit #1/Pine Nut	5.0	-	1.3	-	5.0	1.3
Unit #2/North Mono Lake	20.9	20.0	5.3	10.0	40.9	15.3
<b>Totals</b>	<b>25.9</b>	<b>20.0</b>	<b>6.6</b>	<b>10.0</b>	<b>45.9</b>	<b>16.5</b>

Table Note(s): <sup>a</sup>Temporary disturbance is defined as disturbance that would be reclaimed following the completion of construction. Permanent disturbance includes areas that would not be reclaimed until after GLWP decommissioning is complete.

Table Source(s): NV Energy 2023; TAC 2012

**Proximity of Proposed Action to Leaks**

The GLWP 345-kV transmission lines near Mill Canyon within the Pine Nut PMU would be located within approximately four miles of seven leaks (NDOW 2024). The nearest lek is approximately 1.75 miles southwest of the 345-kV Fort Churchill-Mira Loma and Fort Churchill-Comstock Meadows #1 Transmission Lines, which would be collocated, and the nearest new access road would be located approximately 1.8 miles from a lek.

The Adrian Fire in 2007 burned approximately 14,000 acres of the Pine Nut PMU, which affected the suitability as Bi-State sage-grouse habitat. Portions of the Carson River Transmission Alternative C would cross through this burned area. No recent lek activity has been observed within this area according to data received from the NDOW.

## **Operations and Maintenance**

The Proposed Action would result in impacts to Bi-State sage-grouse during O&M, similar to those during construction. Impacts specific to O&M would include habitat fragmentation from the presence of tall transmission structures and increased predation because of the perching and nesting opportunities for avian predators, such as crows and ravens. The degree of impacts to Bi-State sage-grouse would vary by location. Where the Proposed Action would be collocated with existing overhead electrical lines, the impacts may be less than areas where the transmission lines are not collocated because similar impacts are already present along the existing transmission infrastructure. However, impacts would still occur in areas where collocation is proposed due to the introduction of new transmission infrastructure. Bi-State sage-grouse may already avoid the area around the existing transmission lines and the addition of the Proposed Action adjacent to the existing transmission lines may increase the size of the existing area of avoidance. This additional area of avoidance would be less than if the Proposed Action was not collocated.

Within the Mount Grant PMU, the Proposed Action would cross two areas of Bi-State sage-grouse habitat within the Wassuk Range (refer to Table 3-10, Table 3-11, and Figure 3-2). The presence of the transmission line and access roads would fragment and degrade these two areas of Bi-State sage-grouse habitat. Although these areas would become usable once reclamation is complete, sage-grouse have been documented to avoid habitat areas where tall structures provide perching opportunities to avian predators. Areas where vegetation is successfully restored within the vicinity of the transmission line may not provide the same or similar value to pre-project conditions due to the presence of tall structures (Braun 1998; Holloran et al. 2005).

A ten-year study conducted in central Nevada by Gibson et al. (2018) on the 345-kV Falcon to Gondor transmission line concluded that raven predation impacts may result in greater sage-grouse avoiding habitat up to 7.8 miles from transmission lines and other elevated structures (Gibson et al. 2018). This research also concluded that in years of above-average raven population, greater sage-grouse avoided transmission structures farther from the ROW, re-nesting propensity was reduced, and nest survival was lower closer to the transmission line relative to areas further away. Specifically in years of average-to-high levels of ravens, greater sage-grouse nests located approximately 7.8 miles from the transmission line had a 6 percent to 14 percent higher probability of hatching compared to nests within approximately 0.6 miles of the transmission line.

Predation of Bi-State sage-grouse nests by ravens and other avian predator species is anticipated to occur within and in the vicinity of the Proposed Action's permanent ROW during O&M. Although raptor species are not considered a primary predation threat to Bi-State sage-grouse (USFWS 2013c), common ravens are important predators of Bi-State sage-grouse nests and chicks throughout the western portion of the species' range (Coates et al. 2008; Hagen 2011; Lockyer et al. 2013). The BLM and other Cooperating Agencies have developed a Raven Management Plan (Appendix G) to reduce the impact of ravens to Bi-State sage-grouse. Implementation of the Raven Management Plan would reduce the impact of nest predation by reducing the potential for ravens and other avian predators to nest upon transmission towers or other GLWP infrastructure.

## **Decommissioning**

Impacts on Bi-State sage-grouse during decommissioning would be similar to construction, though to a lesser degree, assuming resident birds acclimated to disturbance during the O&M phase. After decommissioning, previously disturbed areas would become available for Bi-State sage-grouse following reclamation. Due to the slow growth and regeneration rates of sagebrush communities, regeneration of pre-disturbance vegetation conditions is anticipated to require several years or decades. Due to

permanent shifts in nutrient cycles, topsoil conditions (including cryptobiotic soil crusts), and site hydrology, not all areas previously composed of sagebrush-dominant communities may be restored (Knick et al. 2003).

#### **Additional Measures to Avoid and/or Minimize Impacts**

Ravens have been documented to have a substantial impact on prey population dynamics even at low densities (Brussee and Coates 2018). Coates and Delehanty (2010) observed that an increase of one raven per 6.2-mile transect increased a greater sage-grouse nest failure by 7.4 percent. Based on these findings, the Proponent, BLM, and Cooperating Agencies have incorporated current and adaptive management techniques for implementation in the Raven Management Plan (Appendix G). The effects of different tower types (tubular versus lattice) to raven perching and nesting are currently not well-documented. Previous studies have documented that raven and raptor nesting success rates are similar or higher than that of nests located on natural substrates (Steenhof et al. 1993). It is anticipated that tubular tower structures would provide reduced perching and nesting opportunities for ravens and raptors compared to lattice type structures based on the reduced available surface area for perching.

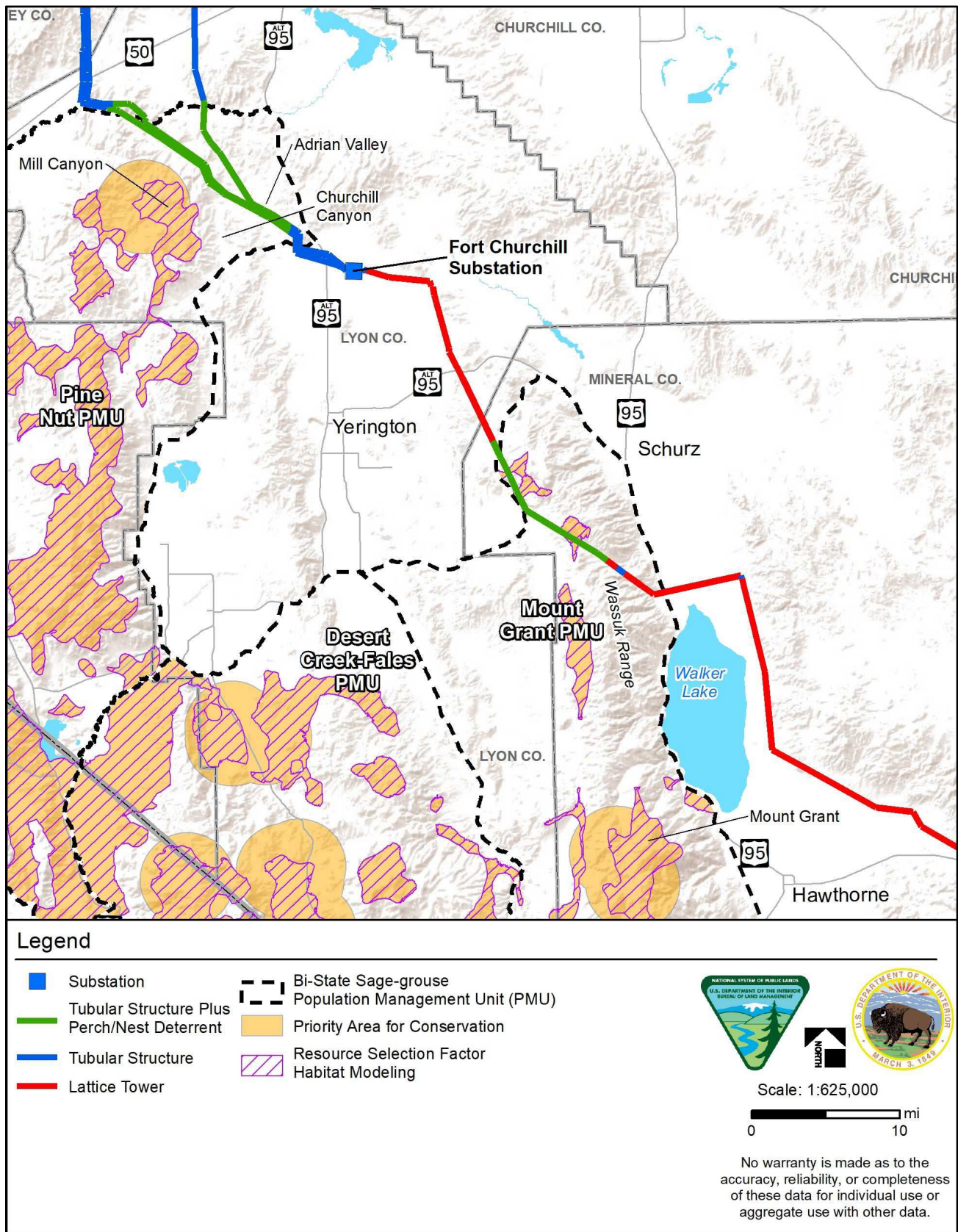
The BLM has added a specific measure to mitigate<sup>8</sup> impacts of the Proposed Action on Bi-State sage-grouse associated with potential increase in raven predation from the introduction of guyed lattice structures. This mitigation measure is referred to as the anti-perching/nesting mitigation in this Final EIS/Proposed RMPA. Its applicable locations are depicted in Figure 3-9. Tubular tower designs (i.e., H-Frame, three-pole dead-end, and monopole structures) with pointed tops rather than lattice tower designs would be constructed in the entire Pine Nut PMU and within approximately two miles of designated PACs in the Mount Grant PMU. Perch and nesting deterrents would be installed on all transmission towers and distribution poles within approximately two miles of PACs and within approximately six miles of leks. In the Bi-State sage-grouse habitat areas, this mitigation measure would replace approximately 13 miles of lattice structures with H-frame structures. Implementation of the anti-perching/nesting mitigation measures would require approximately 25 percent more structures within Bi-State sage-grouse habitat.

#### **Compensatory Mitigation**

The BLM has coordinated with the USFWS and NDOW on the impacts of the Proposed Action to the Bi-State sage-grouse to develop a framework for compensatory mitigation to offset the identified residual effects. Compensatory mitigation ratios for permanent disturbances within Bi-State sage-grouse habitat include 2:1 for acres of permanent disturbance associated with upgrading existing access roads for the proposed transmission line and distribution lines. The compensatory mitigation ratio associated with the proposed transmission line in areas of collocation is also 2:1. The ratio for permanent disturbance associated with areas of new transmission line that is not collocated with existing lines is 4:1. Table 3-12 presents the acres of permanent disturbance and associated ratios that would be offset through compensatory mitigation funded by the Proponent.

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<sup>8</sup> The mitigation measures identified in this EIS are not equivalent or the same as mitigation under ESA Section 7 Consultation.



**Figure 3-9. Anti-Perching/Nesting Mitigation Measure Areas for Bi-State Sage-grouse**



**Table 3-12. Summary of Bi-State Sage-grouse  
Estimated Compensatory Mitigation Acres and Proposed Ratios**

<b>Component</b>	<b>Permanent Disturbance (acres)</b>	<b>Proposed Ratio</b>	<b>Compensatory Mitigation (acres)</b>
Existing Access Road Requiring Improvement	13.4	2:1	26.8
New Access Road	2.7	4:1	10.8
TV Hill Microwave Station Existing Distribution Line	9.0	2:1	18.0
Transmission Line Permanent ROW - Collocated with Existing Transmission	33.9	2:1	67.8
Transmission Line Permanent ROW - Not Collocated	17.6	4:1	70.4
<b>Total</b>	<b>76.6</b>	-	<b>193.8</b>

*Table Acronym(s): ROW – Right-of-way*

Compensatory mitigation funding provided by the Proponent would be placed into a mitigation fund identified in the ROD. Potential Bi-State sage-grouse conservation projects could include but are not limited to habitat restoration efforts, threat mitigation through wildfire fuels reduction projects, and acquisition of conservation easements in valuable Bi-State sage-grouse habitat areas.

**Lahontan Cutthroat Trout and Northwestern Pond Turtle**

The Lahontan cutthroat trout and northwestern pond turtle, although belonging to separate taxon, are riparian species tied to the river ecology of the western Nevada watersheds. Both species are discussed together as they share similar habitat requirements and impacts from the Proposed Action would be similar.

**Construction**

Construction of the Proposed Action would not result in impacts to Lahontan cutthroat trout and northwestern pond turtle because no occupied habitats occur within the temporary ROW area and there would be no construction activities directly within the two species’ suitable habitats. Suitable habitat occurs along the Carson and Walker rivers for the Lahontan cutthroat trout and along the Carson River for the northwestern pond turtle.

Vehicles, equipment, and people would remain on access roads and transmission towers/structures would be constructed on dry land with power line wires spanning the Carson and Walker rivers. Construction activities including staging areas, construction of new access roads, and construction of transmission towers and other ground-disturbing activities would be avoided within 300 feet from the riparian areas along Walker and Carson rivers to extent feasible (Appendix C. EMM BIO-35). However, in such circumstances as spanning the Walker and Carson rivers would not be feasible, approximately 0.04 acres of permanent ground disturbance would occur on both sides of the river crossings for the installation of transmission towers. Coordination with the respective federal ROW agency would be required prior to ground disturbance and a biological monitor would survey the area to ensure direct impacts to the northwest pond turtle and Lahontan cutthroat trout do not occur (Appendix C. EMMs BIO-1 and BIO-35).

Construction of the Proposed Action would result in indirect impacts to potential habitat to the Lahontan cutthroat trout and northwestern pond turtle due to vegetation removal, sedimentation, and stormwater runoff into the Carson and Walker rivers. Vegetation removal within the transmission line ROW and where existing access roads require improvements along the Walker and Carson rivers could impact both species by reducing canopy cover along the waterways and impacting water temperatures and food availability

(e.g., terrestrial, aquatic invertebrates). Vegetation removal along the Carson River could impact suitable nesting habitat for the northwestern pond turtle. Riparian vegetation removal for both the Carson and Walker rivers would be minimized to the extent feasible. Approximately 87.3 acres of riparian vegetation would be within the temporary ROW area (33.8 acres at Walker River and 53.5 acres at Carson River) of the Proposed Action. This riparian vegetation would potentially be removed or trimmed to ensure adequate separation from the transmission line.

The Proposed Action may permanently impact up to approximately 1,200 feet of streambank (both sides) that supports riparian trees along the Carson River crossing and approximately 2,000 feet of streambank along both Walker River crossings. Taller trees may be pruned or removed and lower-growing vegetation and shrubs would remain. Only appropriate land management agency-approved herbicides would be applied during vegetation removal and treatment. For example on BLM-administered lands, only herbicides previously approved through the BLM Programmatic EISs for vegetation treatments would be used (BLM 2007, 2016a). Vegetation is sparse in where the Proposed Action would cross and where access roads requiring improvements are near. These areas require very little vegetation removal along the streambanks. This slight reduction in vegetation along the streambanks would result in negligible changes to suitable habitat for the two species. Construction of the towers, grading of access roads and work areas, and vehicle use during construction would result in soil disturbance and overland movement which may result in soil entering the Carson and Walker rivers from dust and during stormwater runoff events. These impacts would be minimized through implementation of EMMs that would require construction to cease during high winds exceeding 15 miles per hour (mph), staging and construction would occur at least 300 feet from rivers and wetlands, and stormwater management measures (Appendix C. EMMs BIO-42, BIO-45, and HYDRO\_WQ-22).

#### **Operations and Maintenance**

Impacts on Lahontan cutthroat trout and the northwestern pond turtle from ongoing O&M of the Proposed Action are not anticipated because, similar to construction, there would be no O&M activities occurring directly within the two species' occupied or suitable habitat. Approximately 25.3 acres of riparian vegetation would be within the permanent ROW area (12.7 acres at Walker River and 12.6 acres at Carson River) of the Proposed Action. This vegetation may be subject to removal or trimming to ensure adequate separation from the transmission line. Only appropriate federal ROW agency-approved herbicides would be used for vegetation management. The eventual growth of compatible vegetation in treated areas would moderate water temperatures, buffer the input of sediment and herbicides from runoff, and promote riverbank. Additional impacts on the two species from O&M activities would be similar to those from construction due to habitat degradation as a result of vegetation maintenance and sedimentation into the rivers from inspection and maintenance of the transmission facilities. These impacts would be minimized through implementation of EMMs (Appendix C. EMMs BIO-42, BIO-45, and HYDRO\_WQ-22) to control sediment delivery to the river and manage vegetation to moderate river temperatures.

#### **Decommissioning**

Impacts during decommissioning would be similar to impacts described during the construction phase, though to a lesser degree. After reclamation of disturbed areas, vegetation would be restored to pre-construction conditions, to the extent feasible, and human activity associated with the permanent ROW area would cease.

### **Additional Measures to Avoid and/or Minimize Impacts**

There are no additional measures recommended to avoid and/or minimize impacts from the Proposed Action to Lahontan cutthroat trout and the northwestern pond turtle with the implementation of the EMMs (Appendix C).

### **Mojave Desert Tortoise**

#### **Construction**

The Proposed Action would include approximately 15,299.4 acres of temporary ROW area and approximately 4,949.4 acres of permanent ROW area within Mojave desert tortoise habitat (refer to Table 3-13). The Proposed Action includes approximately 177 miles of 525-kV transmission line, of which approximately 38 miles are collocated adjacent to existing transmission line ROWs.

Table 3-13 below provides an estimate of disturbance within the temporary and permanent ROW areas by the actual footprint of the Proposed Action components within Mojave desert tortoise habitat (NV Energy 2023). Construction of the Proposed Action would result in an estimated 4,074 acres of disturbance within the temporary ROW area, of which approximately 2,365 acres would be restored after construction. Construction areas account for the majority of the disturbance within the temporary ROW area, with the construction yards accounting for approximately 51 percent of the disturbance where vegetation would be driven over, crushed, cut to ground level, and/or removed, followed by transmission line structures (approximately 25 percent). The remaining approximately 1,709 acres of disturbance within the permanent ROW area would be restored following decommissioning (Table 3-13).

Studies show that without active reclamation following disturbance in the Mojave Desert, natural recovery of soil and vegetation could take 20 to 300 years. Recovery under power line wires could take approximately 20 years. Recovery along road edges and at power line structures could take approximately 100 years. Recovery of long-lived species (such as creosote bush) is estimated to take at least three times longer than these estimated recovery times (Lovich and Bainbridge 1999; Webb 2002). However, the Proponent would be required to implement reclamation measures for disturbance within the temporary ROW area. Approximately 2,365 acres of disturbance within the temporary ROW area in Mojave desert tortoise habitat (refer to Table 3-13) would be actively reclaimed to extent feasible after construction. Reclamation measures would include seeding or revegetating with native plants salvaged from the temporary ROW area during construction, recontouring and de-compacting temporary work areas, backfilling holes with topsoil removed during drilling, installing cross drains for erosion control, and placing water bars in roads (Appendix C. EMM MDT-3.a). These reclamation measures would reduce habitat loss and degradation from Proposed Action disturbance, improve availability of perennial plants as cover sites, improve availability of forage plants within the 2,365 acres of disturbance within the temporary ROW (Abella and Berry 2016).

Construction may introduce or spread non-native plant species, which could contribute to habitat degradation, habitat loss, and reduction of forage availability. Dust generated from ground disturbance and traffic along unpaved access roads could also affect vegetation within the temporary ROW area, potentially decreasing availability of forage species. Implementation of the Integrated Weed Management Plan (COM Plan pending NV Energy n.d.) and EMMs (Appendix C. EMMs BIO-34, BIO-39, FOREST-1 through FOREST-3, OPS-4, REC-4, REC-12, REC-15, REC-19, MDT-3, and MDT-4) to control the introduction and spread of non-native plant species and reduce dust would minimize these impacts.

**Table 3-13. Proposed Action Acres of Estimated Disturbance and Construction-Related Reclamation in Mojave Desert Tortoise Habitat within the Temporary and Permanent ROW Areas**

<b>Component</b>	<b>Disturbance within Temporary ROW (acres)<sup>a</sup></b>	<b>Reclamation of Construction-Related Disturbance (acres)<sup>a</sup></b>	<b>Disturbance within Permanent ROW (acres)<sup>a</sup></b>
Access Roads <sup>b</sup>	444	0	444
Maintenance Roads	387	0	387
Amplifier Sites	2	0	2
Fiber optic cables (underground)	<1	<1	0
Distribution Poles <sup>c</sup>	19	14	5
Microwave Sites	4	0	4
Substation – AS-2 (Proposed Action)	109	0	109
Substation – Northwest Expansion	22	0	22
Construction Yards <sup>d</sup>	2,085	2,085	0
Transmission Line Structures <sup>c</sup>	1,002	266	736
<b>Total</b>	<b>4,074</b>	<b>2,365</b>	<b>1,709</b>

*Table Acronym(s):* AS – Amargosa Substation; ROW – Right-of-way

*Table Note(s):* <sup>a</sup>Acres were calculated using GIS data and from information provided in the Proponents Preliminary POD (NV Energy 2023). Numbers shown in this table have been rounded for presentation purposes. As such, totals may not reflect the sum of the addends/factors. Calculations are anticipated to be an overestimate of the actual acres of disturbance because some areas would overlap.

<sup>b</sup>Road widths are approximate. Includes new roads to be constructed and existing roads that may require improvements. Calculations for existing roads are overestimated and include the existing roadbed that has previously been disturbed.

<sup>c</sup>Permanent tower pads are completely encompassed by temporary tower work areas. For the purposes of this table, the temporary and permanent disturbance acreages are broken out separately. As such, the disturbance acreage associated with the permanent tower pads has been subtracted from the temporary work area totals to eliminate double-counting of impacts.

<sup>d</sup>Construction yards also include the pull sites and helicopter yards.

Construction-related impacts to Mojave desert tortoises would include direct mortality or injury as a result of being crushed by vehicles traveling on access roads or from disturbance to burrows during construction activities. The addition of new roads and increased use of existing roads during construction would result in an increase in direct mortality or injury to Mojave desert tortoises from being crushed by vehicles. These impacts would be minimized through implementation of EMMs (Appendix C. EMMs MDT-1.d, MDT-1.e, and MDT-1.f).

Construction activities would temporarily impact Mojave desert tortoises due to vibration, noise, and nighttime lighting. Impacts to Mojave desert tortoises during construction would be minimized with the implementation of pre-construction surveys, construction monitoring, and short-distance relocation (less than 984 feet from point of encounter) of Mojave desert tortoises to outside of the construction areas, in accordance with EMMs (Appendix C. MDT-1 through MDT-5) and USFWS handling and relocation procedures (USFWS 2009a).

Temporary exclusion fencing would be placed (during construction, prior to permanent perimeter fencing) around the AS-2 (Proposed Action), Northwest Substation expansion, two amplifier sites, four microwave sites, and five construction yards in Mojave desert tortoise habitat. The construction yards in Mojave desert tortoise habitat would have exclusionary fencing that would be removed following construction activities. Exclusionary fencing around construction areas could restrict Mojave desert tortoise movement. Temporary exclusionary fencing would include shade structures for Mojave desert tortoises outside the fence perimeter (Appendix C. EMM MDT-1.k). Relocation would be conducted by an authorized Mojave

desert tortoise biologist according to USFWS handling and relocation procedures (USFWS 2009) and the Mojave desert tortoise EMMs (Appendix C. EMM MDT-1.j). While relocating Mojave desert tortoises out of the construction areas may result in harassment and possibly injury or death (Blythe et al. 2003), implementation of the EMMs and handling and relocation procedures (USFWS 2009a) would minimize these impacts. The construction-related effects would also be minimized by implementation of the Raven Management Plan (Appendix G), which would require trash and litter control, reducing potential for predator-related effects on Mojave desert tortoises.

When added to anthropogenic barriers (human generated activities, features, or behaviors) barriers to Mojave desert tortoise connectivity (particularly US 95 and other existing transmission line ROWs), the temporary loss of approximately 5,826 acres of Mojave desert tortoise habitat along the transmission ROWs, new access roads, and areas with temporary exclusion fencing may result in localized habitat fragmentation and constriction of movement across the federally listed species wildlife analysis area. This could result in reduction in genetic connectivity between Mojave desert tortoise populations. The temporary loss of habitat represents a small percentage (0.07 percent) of available Mojave desert tortoise habitat in the Eastern and Northeastern Mojave Recovery Units (approximately 7,775,416 acres) (Darst 2014).

The portions of the GLWP along US 95 between Indian Springs and Amargosa is in an area with current connectivity constraints. Table 3-14 below provides acreages of temporary and permanent ROWs within Priority I and Priority II Mojave desert tortoise connectivity areas (see also Figure 3-10). The priority connectivity areas represent priority habitat linkages between and among Mojave desert tortoise conservation areas and habitat with important value for Mojave desert tortoise recovery. Priority I connectivity areas represent linkages between existing conservation areas with the optimal probability for sustaining connectivity for Mojave desert tortoise populations. Priority II connectivity areas consist of other blocks of habitat with the greatest potential to support Mojave desert tortoise population outside of Priority I areas (Nussear et al. 2009; USFWS 2011b). The Proposed Action would contribute to existing habitat connectivity effects in the area along US 95.

To aide in reclamation, measures would be implemented consistent with recommendations included in recent research (Abella and Berry 2016; Abella et al. 2023). Per EMM MDT.3-a (Appendix C), the Proponent would develop a Habitat Restoration Plan and implement an integrated set of restorative enhancements, which may include reestablishment of natural topographic patterns, planting greenhouse-grown native plant seedlings, use of a variety of native annual forb species seed mixes, salvaging soil during construction and reapplying as topsoil during reclamation, and controlling non-native and invasive plant species (Abella and Berry 2016; Abella et al. 2023).

### **Operations and Maintenance**

During O&M, Mojave desert tortoises are expected to reinhabit the Proposed Action transmission and distribution ROWs. However, the perimeter fencing around AS-2 (Proposed Action), Northwest Substation expansion, four microwave sites, and two amplifier sites would remain, preventing Mojave desert tortoises from reinhabiting those areas. Ground-disturbing activities (such as activities to repair or replace structures and equipment) and vegetation management during O&M would result in impacts to Mojave desert tortoises similar to construction impacts, though to a lesser degree as these actions would occur less frequently and in isolated areas. The approximately 149.3 miles of newly constructed access roads associated with the Proposed Action within Mojave desert tortoise habitat may be used by the public. The additional miles of roads and increased use of existing roads during O&M and by the public would increase direct mortality or injury to Mojave desert tortoises as a result of being crushed by vehicles. These impacts

would be minimized through implementation of EMMs, which would restrict unauthorized access on GLWP access roads, require project personnel to check around vehicles and equipment for Mojave desert tortoises before moving the vehicles, and limit project vehicle speeds on unpaved access roads to 15 mph during the Mojave desert tortoise most active season and 25 mph during the least active season (Appendix C. EMMs MDT-1.d, MDT-1.e, and MDT-1.f).

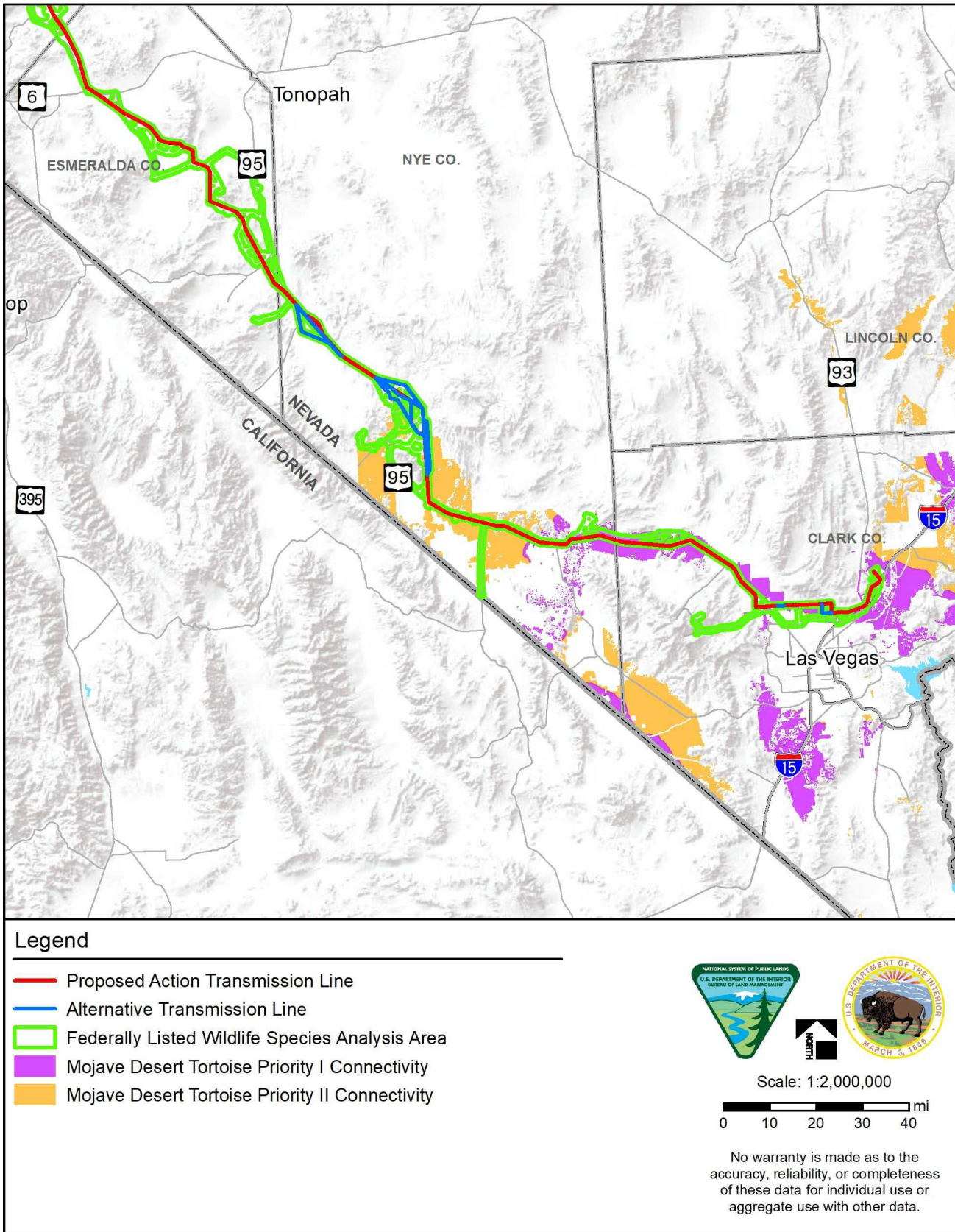
**Table 3-14. Estimated Mojave Desert Tortoise Priority Connectivity Habitat in Proposed Action Temporary and Permanent ROW Areas by GLWP Component**

Component	Priority I	Priority II	Priority I	Priority II
	Connectivity	Connectivity	Connectivity	Connectivity
	Within Temporary	Within Temporary	Within Permanent	Within Permanent
	ROW <sup>a</sup>	ROW <sup>a</sup>	ROW <sup>a</sup>	ROW <sup>a</sup>
	(acres)	(acres)	(acres)	(acres)
Access Roads	516.9	212.8	177.3	71.4
Amplifier Sites	0.9	-	0.9	-
Fiber optic cables (underground)	0.2	-	-	-
Distribution Lines	4.7	1.2	2.3	0.6
Substation – AS-2 (Proposed Action)	-	109.0	-	109.0
Substation – Northwest Expansion	13.4	-	13.4	-
Transmission Line Structures	3,691.0	2,387.3	1,223.5	785.2
<b>Total</b>	<b>4,227.1</b>	<b>2,710.3</b>	<b>1,417.4</b>	<b>966.2</b>

Table Acronym(s): AS – Amargosa Substation; ROW – Right-of-way

Table Note(s): <sup>a</sup>Temporary ROW areas include those areas that would become permanent ROWs following construction.

Three transmission tower types would be utilized for the Proposed Action in Mojave desert tortoise habitat: three-pole dead-end/angle, guyed lattice, and monopole (refer to Table 3-15 and see Table 2-2 for tower descriptions). These towers would provide perching and nesting habitat for ravens in Mojave desert tortoise habitat along the transmission line corridor, which could lead to increased direct Mojave desert tortoise mortality by raven predation. Transmission towers in an open landscape are commonly used and preferred by raptors and ravens for perches and nesting because they provide a hunting vantage point (Knight and Kawashima 1993). Studies have found that transmission towers increase raven predation of Mojave desert tortoises, particularly of juvenile Mojave desert tortoises, reducing an area’s older Mojave desert tortoise age class numbers (Boarman 1992, 2003). Ravens have been observed building nests on a variety of transmission towers and more frequently use towers with crossarms and diagonal and horizontal bracing that provide adequate support (Avian Power Line Interaction Committee [APLIC] 2006; Dixon et al. 2013). Ravens nesting on transmission towers that located in areas where no other nesting substate exists nearby (i.e., no other tall structures present within the landscape within 0.4 miles of the transmission tower) have been documented to substantially reduce Mojave juvenile tortoise populations up to approximately 0.25 miles around the transmission towers (USFWS 2019a). Preliminary raven nesting data collected during an ongoing study conducted by the BLM, NDOW, and the USFWS Desert Tortoise Recovery Office along transmission lines in southern Nevada suggests that ravens prefer lattice towers for perching and nesting compared to tubular towers that provide minimal support structures (Myers 2022). Lattice towers may promote more raven occupancy and increase predation on the local Mojave desert tortoise populations along the permanent ROW compared to other tower types. The GLWP would include



**Figure 3-10. Mojave Desert Tortoise Priority I and II Connectivity Areas**

measures to minimize impacts associated with predation in the Raven Management Plan (Appendix G), including raven monitoring and treatment, litter and trash control, and use of perch and nesting deterrents, where possible. The Proposed Action would introduce approximately 151.4 miles of guyed lattice structures (Table 3-15) within Mojave desert tortoise habitat.

**Table 3-15. Estimated Miles of Proposed Action Transmission Line within Mojave Desert Tortoise Habitat by Tower Type**

Tower Types	BLM	Nevada State Lands	Clark County	NPS	Tribal Land	DOD	Private	Total
Three-Pole Dead-End/Angle	1.0	0.5	-	-	-	-	-	1.5
Guyed Lattice	146.7	0.1	-	-	-	1.4	3.3	151.4
Monopole	5.1	1.0	2.0	1.5	11.4	2.6	0.2	23.7
<b>Total</b>	<b>159.1</b>	<b>1.5</b>	<b>2.0</b>	<b>1.5</b>	<b>5.1</b>	<b>3.9</b>	<b>3.5</b>	<b>176.6</b>

*Table Acronym(s):* BLM – Bureau of Land Management; DOD – Department of Defense; NPS – National Park Service

### Decommissioning

The Proposed Action would result in approximately 1,709 acres of disturbance within the permanent ROW area to Mojave desert tortoise habitat (refer to Table 3-13), which is less than one percent of available Mojave desert tortoise habitat (approximately 7,775,416 acres) in the Northeastern Mojave and Eastern Mojave Recovery Units (Darst 2014).

Impacts during decommissioning would be similar to impacts during construction, though to a lesser degree. After reclamation of disturbed areas, vegetation would be restored to pre-construction conditions and habitat for Mojave desert tortoise would be reestablished, to the extent feasible. Prior to decommissioning, the Habitat Restoration Plan would be reviewed and revised in coordination with the USFWS and applicable land management agencies to confirm any new research or best available data is incorporated, as practical (Appendix C. EMM MDT-3.a). Human activity associated with the GLWP transmission lines and components would cease after decommissioning activities are completed. Use of reclamation techniques shown to be successful in the Mojave Desert described in recent research (Abella and Berry 2016; Abella et al. 2023) would minimize long-term impacts to the extent feasible.

### Additional Measures to Avoid and/or Minimize Impacts

To minimize impacts on the Mojave desert tortoise, EMMs have been developed (Appendix C. EMMs MDT-1 through MDT-5). Additionally, the Proposed Action would include implementation of the Proponent’s Integrated Weed Management Plan (COM Plan pending NV Energy n.d.) and the Raven Management Plan (Appendix G).

The BLM has identified the following measure to mitigate impacts of the Proposed Action on Mojave desert tortoise associated with potential increase in raven predation due to introduction of lattice structures within Mojave desert tortoise habitat. All transmission line structures for the GLWP located in Mojave desert tortoise recovery units (USFWS 2011b) would be designed and constructed using tubular transmission structures (i.e., tubular H-frame, three-pole dead-end, or monopole structures) with pointed tops rather than lattice tower designs. Perch and nest deterrents would be installed on all transmission and distribution structures within Mojave desert tortoise recovery units. This mitigation measure is referred to as the anti-perching/nesting mitigation in this Final EIS/Proposed RMPA.

Approximately 150 miles to 152 miles of lattice transmission structures would be replaced with H-frame structures in the Mojave desert tortoise recovery unit areas, depending on the Action Alternative. This range



of miles is due to the different lengths of the Action Alternatives that would occur within the Mojave desert tortoise recovery units. The estimated distance between H-frame structures is shorter, spaced approximately 1,140 feet apart, than the lattice structures, which would be spaced approximately 1,520 feet apart. The Action Alternatives would require an estimated 521 structures to 528 structures in the Mojave desert tortoise recovery units, whereas an estimated 695 structures to 704 structures would be required under the anti-perching/nesting mitigation measure over the same distance, which is approximately 25 percent more structures.

### **Compensatory Mitigation**

To offset residual impacts to Mojave desert tortoises, the BLM would collect remuneration fees from the Proponent for the total disturbance within the Mojave desert tortoise habitat as compensatory mitigation. The remuneration fees would provide funding for Mojave desert tortoise mitigation, as would be outlined in the terms and conditions of the Biological Opinion (BO) and incorporated into the ROD (Appendix C. EMM MDT-3.d). Remuneration fees would be used for actions expected to promote management and recovery of the Mojave desert tortoise over time (Hastey et al. 1991). Actions may involve habitat acquisition, population or habitat enhancement, increasing knowledge of the species' biological requirements, reducing loss of individual animals, documenting the species status and trend, and preserving distinct population attributes.

### **Mount Charleston Blue Butterfly**

#### **Construction, Operations and Maintenance, and Decommissioning**

Construction, O&M, and decommissioning activities associated with the Proposed Action would have no impacts to the Mount Charleston blue butterfly because no occupied habitat occurs within the GLWP temporary and permanent ROW areas. The Proposed Action would have no impacts to designated critical habitat for the Mount Charleston blue butterfly. Suitable host and nectar plants used by the Mount Charleston blue butterfly may occur just outside the existing Angel Peak microwave site but would not be directly or indirectly impacted by the construction activities associated with the site's expansion. The Angel Peak Microwave Site is an existing microwave site that consists of a 0.1-acre area that is fenced and surrounded by a 0.2-acre graded area. The Proposed Action would move the fence to include the 0.2-acre graded area, for a total fenced microwave site area of approximately 0.3 acres. Habitat degradation from sedimentation to neighboring suitable habitat would be negligible as vehicle travel would occur on existing roadways. The Integrated Weed Management Plan (COM Plan pending NV Energy n.d.) provides measures to reduce the potential for the introduction of invasive species to adjacent habitat containing suitable host and nectar plants (Appendix C. EMMs BIO-18 and BIO-42). Activity associated with the GLWP would cease after decommissioning activities are completed.

#### **Additional Measures to Avoid and/or Minimize Impacts**

There are no additional measures recommended to avoid and/or minimize impacts from the Proposed Action to Mount Charleston blue butterfly with the implementation of the EMMs (Appendix C).

### **Southwestern Willow Flycatcher, Yellow-billed Cuckoo, and Yuma Ridgway's Rail**

The southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail are all riparian obligate species and as such are being discussed together.

#### **Construction**

Construction activities associated with the Proposed Action would have no impacts to the Yuma Ridgway's rail breeding behavior due to the lack of suitable nesting habitat within the federally listed species wildlife

analysis area. Breeding impacts to the yellow-billed cuckoo and southwestern willow flycatcher from the Proposed Action would be minimized by implementing a timing-restriction, which requires construction within approximately 0.25 miles of the Amargosa, Walker, and Carson rivers to only occur outside of the breeding season for the yellow-billed cuckoo and southwestern willow flycatcher (Appendix C. EMM BIO-20). Vegetation removal within the three 345-kV transmission line temporary ROW areas that cross the Carson River and the 525-kV transmission line temporary ROW areas that cross the Amargosa and Walker rivers would result in localized impacts on yellow-billed cuckoo and southwestern willow flycatcher breeding habitat. The vegetation at these locations is relatively sparse and vegetation removal would be limited. Therefore, the Proposed Action would result in negligible impacts on southwestern willow flycatcher and yellow-billed cuckoo breeding habitat.

Incidental occurrence of southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail throughout the federally listed species wildlife analysis area during migration and dispersal cannot be ruled out. Any occurrence of these birds within the federally listed species wildlife analysis area would be brief and infrequent. Construction noise, vehicle activity, and human presence may change these birds' behavior including diverting flight and perching away from the construction activities. Implementation of EMM BIO-35 (Appendix C) would reduce vegetation removal within riparian areas at the Amargosa, Walker, and Carson rivers and other riparian areas along washes. The EMM BIO-35 would ensure that impacts to riparian vegetation would be avoided or minimized to the extent feasible during construction of the GLWP. Therefore, impacts on migration and dispersal habitat of the southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail resulting from construction would be negligible.

#### **Operations and Maintenance**

During O&M of the Proposed Action, there would be no impacts to southwestern willow flycatcher and Yuma Ridgway's rail breeding behavior due to the lack of suitable nesting habitat within the federally listed species wildlife analysis area. Aerial and ground inspections of the transmission lines may occur at any time during the year including times during the yellow-billed cuckoo breeding season. These inspections would be brief (minutes), infrequent, and unlikely to result in impacts. Removal of incompatible vegetation and maintenance activities, which are longer in duration and create higher than ambient noise levels, would be conducted outside the yellow-billed cuckoo breeding season within approximately 0.25 miles of the Amargosa, Walker, and Carson rivers to minimize impacts.

Birds may also collide with transmission line wires during migration and dispersal. Collision with power lines is more common where power lines cross rivers, lakes, and wetlands (APLIC 2012). The Bird and Bat Conservation Strategy (BBCS) (Appendix H) includes measures to design the transmission lines (e.g., by installation of line markers or other methods as described in APLIC-suggested practices) to reduce the potential for bird collision in these areas. With implementation of the BBCS (Appendix H) and EMMs (Appendix C. EMMs BIO-5 and BIO-36), the potential for impacts on southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail during migration and dispersal would be unlikely during O&M of the Proposed Action.

#### **Decommissioning**

Impacts on southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail during decommissioning would be similar to those of construction, though to a lesser degree. After reclamation of disturbed areas, vegetation would be restored to pre-construction conditions over the long-term, to the extent feasible. Human activity associated with the GLWP would cease after decommissioning activities are completed.

### Additional Measures to Avoid and/or Minimize Impacts

There are no additional measures recommended to avoid and/or minimize impacts from the Proposed Action to southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway’s rail with the implementation of the EMMs (Appendix C).

### Federally Listed Plant Species

No suitable habitat is present within the Proposed Action temporary or permanent ROW areas for Amargosa niterwort, Ash Meadows gumplant (Silver Sage Eco 2023c), and spring-loving centaury (BIO-WEST 2024). The Proposed Action, therefore, would not impact these plant species and they are not discussed further in the analysis of the Proposed Action below.

Table 3-16 below provides the acres of suitable habitat within the Proposed Action temporary and permanent ROW areas identified during survey for the four Ash Meadows plant species (Silver Sage Eco 2023c). For the purposes of this analysis, it is assumed that Ash Meadows blazingstar, Ash Meadows ivesia, Ash Meadows milkvetch, and Ash Meadows sunray could occur within the suitable habitat identified during the habitat surveys (Silver Sage Eco 2023c) (refer to Figure 3-8).

**Table 3-16. Proposed Action Estimated Acres of Suitable Habitat for the Ash Meadow Plant Species**

Species Name	Suitable Habitat within the Analysis Area (acres)	Suitable Habitat within Temporary ROW <sup>a</sup> (acres)	Suitable Habitat within Permanent ROW <sup>a</sup> (acres)
Ash Meadows blazingstar	601.3	279.8	90.3
Ash Meadows ivesia	601.3	279.8	90.3
Ash Meadows milkvetch	502.6	240.3	78.1
Ash Meadows sunray	601.3	279.8	90.3

*Table Acronym(s):* ROW – Right-of-way

*Table Note(s):* <sup>a</sup>Temporary ROW areas include those areas that would become permanent ROWs following construction.

*Table Source(s):* Refer to Amargosa ESA Plants: 2023 Botanical Survey Results (Silver Sage Eco 2023c)

### Construction

The Ash Meadows blazingstar, Ash Meadows ivesia, Ash Meadows milkvetch, and Ash Meadows sunray share similar habitat requirements for areas near dry washes and springs/seeps. Construction of the Proposed Action would temporarily disturb up to approximately 279.8 acres of suitable habitat for Ash Meadows blazingstar, Ash Meadows ivesia, and Ash Meadows sunray and approximately 240.3 acres of suitable habitat for Ash Meadows milkvetch. To reduce this habitat loss, the Proponent would implement EMMs to avoid construction activities within 300 feet from the ordinary high water mark of perennial, intermittent, and ephemeral drainages and from marshes, playas, and other wetlands including springs, as feasible (Appendix C. EMMs BIO-35 and HYDRO\_WQ-22).

The Proponent would implement EMMs (Appendix C. EMMs BIO-22 and BIO-38) to avoid existing populations that occur within the GLWP temporary and permanent ROW areas during construction. If any individuals/populations of the four Ash Meadows plant species are identified, a 300-foot buffer would be established to prohibit ground-disturbing activities associated with GLWP components within the avoidance buffers, where feasible. However, if 2024 surveys identify that any of these plant species occur within the temporary and/or permanent ROW areas and the Proponent is not able to avoid the plants completely, construction would impact individual plants or localized plant populations. Under EMM BIO-38 (Appendix C), if plants cannot be avoided, the Proponent would coordinate with the USFWS, BLM, and appropriate land management agencies to determine if salvaging individuals or their seeds is feasible prior to removing

individuals from the site. Implementation of the EMMs (Appendix C) would minimize impacts on the Ash Meadows plant species as much as possible, but individual plants could be impacted during construction.

Construction of the GLWP would indirectly impact the four Ash Meadows plant species habitat due to increases in fugitive dust and sedimentation and introduction of invasive plant species to suitable habitat within and adjacent to the temporary and permanent ROW areas. To minimize these indirect impacts on the Ash Meadows plant species, the Proponent would implement EMMs to minimize impacts from dust, erosion, and sedimentation (Appendix C. EMMs BIO-41 and BIO-42).

To minimize impacts from invasive plant species and noxious weeds during construction, the Proponent would implement an Integrated Weed Management Plan (COM Plan pending NV Energy n.d.). The Integrated Weed Management Plan would include measures such as ensuring vehicles and equipment associated with the GLWP are inspected and cleaned to reduce the introduction and spread of invasive plant species and noxious weeds to the GLWP temporary and permanent ROW areas and treating weed infestations with herbicide as described below.

Herbicide application would occur during construction along access roads and within the transmission and distribution ROWs to manage invasive plant species, noxious weeds, and incompatible native vegetation. To minimize herbicide exposure to the four Ash Meadows plant species, buffers limiting herbicide use would be implemented around these species (Appendix C. EMMs BIO-2 and BIO-34). Only appropriate land management agency-approved herbicides would be applied. Herbicide application may occur when authorized through the agency-specific processes and following the established EMMs (Appendix C. EMMs BIO-2 and BIO-34).

#### **Operations and Maintenance**

During O&M, impacts from ground-disturbing activities and vegetation management of the Proposed Action would occur less frequently and in isolated areas compared to during construction. The GLWP would result in the loss of up to 90 acres of suitable habitat for the Ash Meadows blazingstar, Ash Meadows ivesia, and Ash Meadows sunray and approximately 78 acres of suitable habitat for the Ash Meadows milkvetch within the permanent ROW area; destruction of individual plants or populations within the permanent ROW area; and exposure from herbicide during vegetation management activities. Impacts during O&M would be minimized through implementation of EMMs (Appendix C. EMMs BIO-2, BIO-22, BIO-34, BIO-35, BIO-38, BIO-41, BIO-42, and HYDRO\_WQ-22) that include avoidance buffers that minimize impacts on plants and habitat and exposure from herbicide, control herbicides used and application methods, control dust and erosion, and limit vehicle speeds to 25 mph or less on unpaved access roads.

Following the construction of the GLWP, the Proponent would implement a Habitat Restoration Plan to restore the temporary disturbance areas to pre-construction conditions, to the extent feasible (Appendix C. EMMs REC-20 and REC-21). Outside of the permanent disturbance areas, the remaining area within the temporary ROWs (approximately 189.5 acres of suitable habitat for Ash Meadows blazingstar, Ash Meadows ivesia, and Ash Meadows sunray and approximately 192.2 acres of suitable habitat for Ash Meadows milkvetch habitat) would undergo reclamation using topsoil salvaged during construction. The goal of using salvaged topsoil is to preserve the original soil conditions, mimic natural drainage patterns through contouring, and reseed disturbed areas with a native seed mix approved by the appropriate federal ROW agency.

### **Decommissioning**

Impacts during decommissioning would be similar to those during construction, though to a lesser degree. After reclamation of disturbed areas, vegetation would be restored to pre-construction conditions and habitat for the Ash Meadows plant species would be reestablished, to the extent feasible. Human activity associated with the GLWP would cease after decommissioning is completed.

### **Additional Measures to Avoid and/or Minimize Impacts**

There are no additional measures recommended to avoid and/or minimize impacts from the Proposed Action to the Ash Meadows blazingstar, Ash Meadows ivesia, Ash Meadows milkvetch, and Ash Meadows sunray with the implementation of the EMMs (Appendix C).

## **3.1.4.3 Direct and Indirect Impacts from Losee Transmission Line Route Group**

### **Construction, Operations and Maintenance, and Decommissioning**

#### **Bi-State Sage-grouse, Lahontan Cutthroat Trout, Mount Charleston Blue Butterfly, Northwestern Pond Turtle, and Federally Listed Plant Species**

The Losee Transmission Alternative A would occur outside the range for the Bi-State Sage-grouse, Lahontan cutthroat trout, Mount Charleston blue butterfly, northwestern pond turtle, and the seven federally listed plant species. Therefore, there would be no impacts on any of these species from construction, O&M, and decommissioning activities associated with the Losee Transmission Alternative A.

#### **Mojave Desert Tortoise**

The Losee Transmission Alternative A would cross through Mojave desert tortoise suitable and occupied habitat. The Losee Transmission Alternative A includes eight Mojave desert tortoise burrows within the temporary ROW area and no Mojave desert tortoise burrows in the permanent ROW area. The Proposed Action would include four Mojave desert tortoise burrows in the temporary ROW area and no burrows in the permanent ROW area. The Losee Transmission Alternative A and the Proposed Action would both be located within Priority I connectivity habitat (Nussear et al. 2009; USFWS 2011b). The Losee Transmission Alternative A would include approximately 286.3 acres of Priority I connectivity habitat in the temporary ROW area and approximately 94.8 acres in the permanent ROW area, whereas the proposed Action would include approximately 136.9 acres of Priority I connectivity habitat in the temporary ROW area and approximately 47.2 acres in the permanent ROW area. The Proposed Action and Losee Transmission Alternative A would have similar impacts on Mojave desert tortoise populations from construction, O&M, and decommissioning of the GLWP. Impacts on desert tortoise connectivity would be greater under the Losee Transmission Alternative A than the Proposed Action.

#### **Southwestern Willow Flycatcher, Yellow-billed Cuckoo, and Yuma Ridgway's Rail**

The Losee Transmission Alternative A and the Proposed Action would not occur within suitable breeding habitat for the southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail. Similar to the Proposed Action, these species could migrate or disperse over the alignments of the Losee Transmission Alternative A and the Proposed Action. Construction, O&M, and decommissioning noise, vehicle activity, and human presence may change these birds' behavior, including diverting flight and perching away from the construction activities, though any occurrence of these birds would be brief and infrequent. The impacts of the Losee Transmission Alternative A on southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail would be negligible and similar to the Proposed Action.

### 3.1.4.4 Direct and Indirect Impacts from TUSK Transmission Line Route Group

#### **Construction, Operations and Maintenance, and Decommissioning**

##### **Bi-State Sage-grouse, Lahontan Cutthroat Trout, Mount Charleston Blue Butterfly, Northwestern Pond Turtle, and Federally Listed Plant Species**

The TUSK Transmission Alternative B would occur outside the range for the Bi-State sage-grouse, Lahontan cutthroat trout, Mount Charleston blue butterfly, northwestern pond turtle, and the seven federally listed plant species. Therefore, there would be no impacts to any of these species from construction, O&M, and decommissioning activities associated with TUSK Transmission Alternative B.

##### **Mojave Desert Tortoise**

The TUSK Transmission Alternative B would occur within Mojave desert tortoise suitable habitat. Because the TUSK Transmission Alternative B and the Proposed Action are close in proximity to each other, the Mojave desert tortoise survey results indicate no notable difference between these the TUSK Transmission Alternative B in comparison to the Proposed Action. The lattice structures of TUSK Transmission Alternative B would increase the potential for raven predation on Mojave desert tortoise in and around TUSK, resulting in long-term impacts on tortoise populations. The TUSK Transmission Alternative B and the Proposed Action are both located within Priority I and II connectivity habitat (Nussear et al. 2009; USFWS 2011b). The TUSK Transmission Alternative B would include approximately 22.1 acres of Priority I and II connectivity habitat in the temporary ROW area and approximately 5.9 acres in the permanent ROW area, whereas the Proposed Action would include approximately 12.6 acres of Priority I and II connectivity habitat in the temporary ROW area and approximately 2.1 acres in the permanent ROW area. Impacts on desert tortoise connectivity would be greater under the TUSK Transmission Alternative B than the Proposed Action.

##### **Southwestern Willow Flycatcher, Yellow-billed Cuckoo, and Yuma Ridgway's Rail**

The TUSK Transmission Alternative B and the Proposed Action would not occur within suitable breeding habitat for the southwestern willow flycatcher and Yuma Ridgway's rail and these Action Alternatives would not increase or reduce the impacts on breeding habitat. Southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail birds could migrate or disperse over the alignments of the TUSK Transmission Alternative B and the Proposed Action. Construction, O&M, and decommissioning noise, vehicle activity, and human presence may change these birds' behavior including diverting flight and perching away from the construction activities, though any occurrence of these birds would be brief and infrequent. Therefore, the impacts of the TUSK Transmission Alternative B on southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail would be negligible and similar to the Proposed Action.

### 3.1.4.5 Direct and Indirect Impacts from Beatty Transmission Line Route Group

#### **Construction, Operations and Maintenance, and Decommissioning**

##### **Bi-State Sage-grouse, Lahontan Cutthroat Trout, Mount Charleston Blue Butterfly, and Northwestern Pond Turtle**

The Beatty Transmission Alternatives would occur outside the range for the Bi-State sage-grouse, Lahontan cutthroat trout, Mount Charleston blue butterfly, and northwestern pond turtle. Therefore, there would be no impacts to any of these species from construction, O&M, and decommissioning activities associated with the Beatty Transmission Alternatives.

### Mojave Desert Tortoise

The Beatty Transmission Alternatives would all occur within Mojave desert tortoise suitable habitat. Impacts to Mojave desert tortoises may occur during construction, O&M, and decommissioning. Table 3-17, Table 3-18, and Table 3-19 below show Mojave desert tortoise survey results within the survey area, temporary ROW area, and permanent ROW area for these alternatives and the Proposed Action. Surveys along Beatty Transmission Alternatives A and C identified similar quantity of Mojave desert tortoise observations as the Proposed Action. Surveys identified the most Mojave desert tortoise observations within Beatty Transmission Alternatives G and K, with slightly more burrows along Beatty Transmission Alternative G than Beatty Transmission Alternative K (particularly in Burrow Class 1 to 3, which would more likely be utilized by Mojave desert tortoises than Burrow Class 4 and 5). The Beatty Transmission Alternative L survey identified the fewest Mojave desert tortoise observations, though four live Mojave desert tortoises were found along this alternative.

Portions of all of the Beatty Transmission Alternatives (including the Proposed Action) occur within Mojave desert tortoise Priority II connectivity habitat. Beatty Transmission Alternatives A, C, and the Proposed Action have equivalent areas within Priority II connectivity habitat, while Beatty Transmission Alternatives G and L contain more Priority II connectivity habitat than the other Beatty Transmission Alternatives (Table 3-20).

Impacts on Mojave desert tortoises would be similar under Beatty Transmission Alternatives A and C, compared to the Proposed Action, because survey findings and quantity of Priority II connectivity habitat were similar. Beatty Transmission Alternatives K and G would result in slightly greater impacts on the Mojave desert tortoise than the Proposed Action and other Beatty Transmission Alternatives. While there were less Mojave desert tortoise observations along Beatty Transmission Alternative L than along other Beatty Transmission Alternatives, Beatty Transmission Alternative L included more Mojave desert tortoise Priority II connectivity habitat. All these Action Alternatives contain suitable habitat for Mojave desert tortoises, and EMMs (Appendix C. EMMs MDT-1 through MDT-5) would be applied to all the Beatty Transmission Alternatives to avoid and minimize impacts to Mojave desert tortoise and their habitat.

**Table 3-17. Mojave Desert Tortoise Survey Observations for Beatty Transmission Alternatives within the Survey Area**

<b>Observation Type<sup>a</sup></b>	<b>Beatty Trans. Alt. A</b>	<b>Beatty Trans. Alt. C</b>	<b>Beatty Trans. Alt. G</b>	<b>Beatty Trans. Alt. K</b>	<b>Beatty Trans. Alt. L<sup>b</sup></b>	<b>Proposed Action</b>
Burrow Class 1	11	11	11	11	3	11
Burrow Class 2	18	19	30	27	2	18
Burrow Class 3	7	7	9	13	8	7
Burrow Class 4	8	9	8	7	7	8
Burrow Class 5	4	5	2	3	4	4
Live Tortoise	-	-	1	-	4	-
Tortoise Carcass	3	3	3	3	1	3
<b>Total</b>	<b>51</b>	<b>54</b>	<b>64</b>	<b>64</b>	<b>29</b>	<b>48</b>

*Table Acronym(s):* Alt. – Alternative; Trans. – Transmission

*Table Note(s):* <sup>a</sup>Burrow Class Legend: Class 1 – currently active, with tortoise or recent tortoise sign, Class 2 – good condition, definitely tortoise, no evidence of recent use, Class 3 – Deteriorated condition, definitely tortoise, no evidence of recent use, Class 4 – Deteriorated condition, possibly tortoise, Class 5 – Poor condition, possibly tortoise

<sup>b</sup>Data was provided by AngloGold Ashanti (Environmental Resource Management 2024). Data was extrapolated from 100 percent coverage surveys to reflect linear protocol surveys to provide similar comparison to the Action Alternatives.

**Table 3-18. Mojave Desert Tortoise Survey Observations for Beatty Transmission Alternatives within the Temporary ROW Areas**

Observation Type <sup>a</sup>	Beatty Trans. Alt. A	Beatty Trans. Alt. C	Beatty Trans. Alt. G	Beatty Trans. Alt. K	Beatty Trans. Alt. L <sup>b</sup>	Proposed Action
Burrow Class 1	2	2	2	2	2	2
Burrow Class 2	10	10	22	16	2	10
Burrow Class 3	4	4	5	7	2	4
Burrow Class 4	2	2	3	2	4	2
Burrow Class 5	2	2	1	2	2	2
Live Tortoise	-	-	1	-	3	-
<b>Total</b>	<b>20</b>	<b>20</b>	<b>34</b>	<b>29</b>	<b>15</b>	<b>20</b>

Table Acronym(s): ROW – Right-of-way

Table Note(s): <sup>a</sup>Burrow Class Legend: Class 1 – currently active, with tortoise or recent tortoise sign, Class 2 – good condition, definitely tortoise, no evidence of recent use, Class 3 – Deteriorated condition, definitely tortoise, no evidence of recent use, Class 4 – Deteriorated condition, possibly tortoise, Class 5 – Poor condition, possibly tortoise

<sup>b</sup>Data was provided by AngloGold Ashanti (Environmental Resource Management 2024). Data was extrapolated from 100 percent coverage surveys to reflect linear protocol surveys to provide similar comparison to the Action Alternatives.

**Table 3-19. Mojave Desert Tortoise Survey Observations for Beatty Transmission Alternatives within the Permanent ROW Areas**

Observation Type <sup>a</sup>	Beatty Trans. Alt. A	Beatty Trans. Alt. C	Beatty Trans. Alt. G	Beatty Trans. Alt. K	Beatty Trans. Alt. L <sup>b</sup>	Proposed Action
Burrow Class 2	5	5	6	7	-	5
Burrow Class 3	1	1	1	1	-	1
Burrow Class 5	1	1	-	-	-	1
Live Tortoise	-	-	1	-	-	-
<b>Total</b>	<b>7</b>	<b>7</b>	<b>8</b>	<b>8</b>	<b>0</b>	<b>7</b>

Table Acronym(s): Alt. – Alternative; Trans. – Transmission; ROW – Right-of-way

Table Note(s): <sup>a</sup>Burrow Class Legend: Class 1 – currently active, with tortoise or recent tortoise sign, Class 2 – good condition, definitely tortoise, no evidence of recent use, Class 3 – Deteriorated condition, definitely tortoise, no evidence of recent use, Class 4 – Deteriorated condition, possibly tortoise, Class 5 – Poor condition, possibly tortoise

<sup>b</sup>Data was provided by AngloGold Ashanti (Environmental Resource Management 2024). Data was extrapolated from 100 percent coverage surveys to reflect linear protocol surveys to provide similar comparison to the Action Alternatives.

**Table 3-20. Estimated Acres of Mojave Desert Tortoise Priority Connectivity Habitat within Beatty Transmission Alternatives Temporary and Permanent ROW Areas**

Component	Beatty Trans. Alt. A (acres)	Beatty Trans. Alt. C (acres)	Beatty Trans. Alt. G (acres)	Beatty Trans. Alt. K (acres)	Beatty Trans. Alt. L (acres)	Proposed Action
Priority II Connectivity within Temporary ROW <sup>a</sup>	399.6	399.6	565.2	457.2	598.3	399.6
Priority II Connectivity within Permanent ROW <sup>a</sup>	126.1	126.1	150.9	128.2	192.0	126.1

Table Acronym(s): Alt. – Alternative; Trans. – Transmission; ROW – Right-of-way

Table Note(s): <sup>a</sup>Temporary ROW areas include those areas that would become permanent ROWs following construction.

### Southwestern Willow Flycatcher, Yellow-billed Cuckoo, and Yuma Ridgway's Rail

The Beatty Transmission Alternatives would not occur within suitable breeding habitat for the Yuma Ridgway's rail and these Action Alternatives would not increase or reduce the impacts on breeding habitat. Suitable habitat for the southwestern willow flycatcher and yellow-billed cuckoo has the potential to occur where the Beatty Alternatives A, C, G, K, and L and the Proposed Action would cross the Amargosa River. However, the areas where the Amargosa River crossings would occur by these Action Alternatives are considered low-quality breeding habitat. Regardless of the current quality of the breeding habitat,



southwestern willow flycatcher and yellow-billed cuckoo breeding season timing restrictions would be implemented for construction activities within approximately 0.25 miles of the Amargosa River. This timing restriction, regardless of alternative, would ensure that the construction activities do not disturb either species during breeding activities. The impacts of the Beatty Transmission Alternatives A, C, G, K, and L on breeding southwestern willow flycatcher and yellow-billed cuckoo would be negligible, similar to the Proposed Action.

Southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail could migrate or disperse over the alignments of the Beatty Transmission Alternatives and the Proposed Action. Construction, O&M, and decommissioning noise, vehicle activity, and human presence may change these birds' behavior including diverting flight and perching away from the construction activities, though any occurrence of these birds would be brief and infrequent. The impacts of the Beatty Transmission Alternatives on southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail would be negligible and similar to the Proposed Action.

### **Federally Listed Plant Species**

The Beatty Transmission Alternatives, including the Proposed Action, would occur outside the species range for the Amargosa niterwort, Ash Meadows gumplant, Ash Meadows blazingstar, Ash Meadows ivesia, Ash Meadows milkvetch, and Ash Meadows sunray. Therefore, there would be no impacts to these species from construction, O&M, and decommissioning activities associated with the Beatty Transmission Alternatives.

The Beatty Transmission Alternatives, not including the Proposed Action, would include unoccupied suitable habitat for spring-loving centaury (Table 3-21). However, there would be no spring-loving centaury occupied habitat within the temporary or permanent ROW areas of the Beatty Transmission Alternatives (BIO-WEST 2024). The nearest occupied habitat is located approximately 319 feet from the temporary ROW area for the Beatty Transmission Alternative G, approximately 0.9 miles from the Beatty Transmission Alternatives A, K, and L temporary ROW areas, and approximately 3.2 miles from the Beatty Transmission Alternative C temporary ROW area (Figure 3-7). The Proposed Action would not include suitable habitat for spring-loving centaury.

To reduce the loss of suitable habitat for the spring-loving centaury, construction activities and GLWP components would be designed, to the extent feasible, to avoid spring-loving centaury unoccupied suitable habitat within a 300-foot buffer from suitable habitat (Appendix C. EMM BIO-49). If GLWP components associated with the Beatty Transmission Alternatives would need to be constructed within the 300-foot buffer, the Proponent would implement a Habitat Restoration Plan to restore the temporary disturbance areas to pre-construction condition, to the extent feasible (Appendix C. EMMs REC-20 and REC-21). Salvaged topsoil would be used to preserve the original soil conditions, mimic natural drainage patterns through contouring, and reseed disturbed areas with a native seed mix approved by the appropriate federal ROW agency.

Suitable habitat conditions in the unoccupied habitat areas could promote species occupancy in the future. The occupied spring-loving centaury habitat located along the Amargosa River is approximately 319 feet from where the Beatty Transmission Alternative G would cross the Amargosa River. Therefore, the potential of spring-loving centaury to occupy currently unoccupied suitable habitat in the future would be greatest under the Beatty Transmission Alternative G. Prior to GLWP micro-siting and final design, the pre-construction surveys would be conducted during the blooming period for the species to confirm no

**Table 3-21. Estimated Acres of Spring-loving Centaury Suitable Habitat for Beatty Transmission Alternatives**

<b>Species Name</b>	<b>Beatty Trans. Alt. A (acres)</b>	<b>Beatty Trans. Alt. C (acres)</b>	<b>Beatty Trans. Alt. G (acres)</b>	<b>Beatty Trans. Alt. K (acres)</b>	<b>Beatty Trans. Alt. L (acres)</b>	<b>Proposed Action (acres)</b>
Unoccupied suitable habitat within the temporary ROW <sup>a</sup>	3.7	0.1	1.7	3.7	3.7	0.0
Unoccupied suitable habitat within the permanent ROW <sup>a</sup>	0.9	0.1	0.1	0.9	0.9	0.0

*Table Acronym(s):* Alt. – Alternative; ROW – Right-of-way; Trans. – Transmission

*Table Note(s):* <sup>a</sup>Temporary ROW area includes those areas that would become permanent ROWs following construction

*Table Source(s):* Refer to Amargosa ESA Plants: 2023 Botanical Survey Results (Silver Sage Eco 2023c)

populations occur within the temporary and permanent ROW areas that contain suitable habitat (Appendix C. EMM BIO-21). If any individuals or populations of the spring-loving centaury are identified, a 300-foot buffer would be implemented and ground-disturbing activities and micro-siting structures within the buffer area would be avoided, where feasible (Appendix C. EMMs BIO-22, BIO-38, and BIO-49). If spring-loving centaury populations cannot be avoided, the Proponent would coordinate with the USFWS and appropriate land management agencies to determine if salvaging individuals and/or their seeds is feasible prior to removing individuals from the site (Appendix C. EMM BIO-38). Therefore, the Beatty Transmission Alternatives would impact suitable habitat and may impact individual spring-loving centaury plants and occupied habitat should the unoccupied suitable habitat become occupied prior to construction or during O&M and decommissioning. The Proposed Action would not occur in suitable or occupied habitat for spring-loving centaury and would not impact this plant or its habitat.

Ground-disturbing activities during construction, O&M, and decommissioning would result in similar impacts on the spring-loving centaury as described in Section 3.1.4.2 for the other Ash Meadows plant species. The Beatty Transmission Alternatives would result in impacts to spring-loving centaury unoccupied suitable habitat within the temporary and permanent ROW areas, as identified in Table 3-21, and herbicide exposure if spring-loving centaury inhabit the unoccupied suitable habitat areas in the future. Impacts during O&M would be minimized through implementation of EMMs (Appendix C. EMMs BIO-2, BIO-22, BIO-38, BIO-34, BIO-35, BIO-41, BIO-42, and HYDRO\_WQ-22) that include avoidance buffers that minimize impacts on habitat and exposure from herbicide, control herbicides used and application methods, control dust and erosion, and limit vehicle speeds to 25 mph or less on unpaved access roads. Impacts on unoccupied suitable habitat would be the greatest under Beatty Transmission Alternatives A, K, and L, and impacts on unoccupied suitable habitat would be less under Beatty Transmission Alternatives C and G. Indirect impacts from herbicide exposure, dust, and erosion would be greatest under the Beatty Transmission Alternative G due to the close proximity of spring-loving centaury occupied habitat (approximately 319 feet) to the temporary ROW area for this alternative. In comparison, the Proposed Action would have no impact on the spring-loving centaury.

### **3.1.4.6 Direct and Indirect Impacts from Scotty's Junction Transmission Line Route Group**

#### **Construction, Operations and Maintenance, and Decommissioning**

##### **Bi-State Sage-grouse, Lahontan Cutthroat Trout, Mount Charleston Blue Butterfly, Northwestern Pond Turtle, and Federally Listed Plant Species**

The Scotty's Junction Transmission Alternatives would occur outside the range for the Bi-State sage-grouse, Lahontan cutthroat trout, Mount Charleston blue butterfly, northwestern pond turtle, and the seven federally listed plant species. Therefore, there would be no impacts to any of these species from construction, O&M, and decommissioning activities associated with the Scotty's Junction Transmission Alternatives.

##### **Mojave Desert Tortoise**

The Scotty's Junction Transmission Alternatives A and B and the Proposed Action would occur within Mojave desert tortoise suitable habitat. No Mojave desert tortoises or signs were observed within the temporary or permanent ROW areas for the Scotty's Junction Transmission Alternatives A or B. One Mojave desert tortoise burrow was observed within the Proposed Action's permanent ROW area only. The Scotty's Junction Transmission Alternatives and the Proposed Action would not occur within priority connectivity habitat for desert tortoise. The Scotty's Junction Transmission Alternatives A and B would have similar impacts on Mojave desert tortoise from construction, O&M, or decommissioning of the GLWP as the Proposed Action.

##### **Southwestern Willow Flycatcher, Yellow-billed Cuckoo, and Yuma Ridgway's Rail**

The Scotty's Junction Transmission Alternatives would not occur within suitable breeding habitat for the southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail and these Action Alternatives would not increase or reduce the impacts on breeding habitat. The Southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail could migrate or disperse over the alignments of the Scotty's Junction Transmission Alternatives A and B and the Proposed Action. Construction, O&M, and decommissioning noise, vehicle activity, and human presence may change these birds' behavior including diverting flight and perching away from the construction activities, though any occurrence of these birds would be brief and infrequent. The impacts of the Scotty's Junction Transmission Alternatives on southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail would be negligible and similar to the Proposed Action.

### **3.1.4.7 Direct and Indirect Impacts from Mason Valley WMA Transmission Line Route Group**

#### **Construction, Operations and Maintenance, and Decommissioning**

##### **Bi-State Sage-grouse, Mount Charleston Blue Butterfly, Mojave Desert Tortoise, Northwestern Pond Turtle, and Federally Listed Plant Species**

The Mason Valley WMA Transmission Alternatives would occur outside the range for the Bi-State sage-grouse, Mount Charleston blue butterfly, Mojave desert tortoise, northwestern pond turtle, and the seven federally listed plant species. There would be no impacts to any of these species or their respective habitats from construction, O&M, and decommissioning activities associated with the Mason Valley WMA Transmission Alternatives.

##### **Lahontan Cutthroat Trout**

The Walker River crossing for both the Proposed Action and the Mason Valley WMA Transmission Alternative A would contain suitable habitat for Lahontan cutthroat trout. Vegetation density at the

Proposed Action crossing of the Walker River would be less than the Mason Valley WMA Transmission Alternative A. Approximately 15.6 acres of the temporary and approximately 6.0 acres of the permanent ROW areas would occur within riparian habitat along the Proposed Action Walker River crossings compared to the Mason Valley WMA Transmission Alternative A's approximately 12.8 acres of temporary and approximately 2.0 acres of permanent ROW within riparian habitat. Vegetation is sparse in both Walker River crossings and the difference in potential disturbance between Mason Valley WMA Transmission Alternative A and the Proposed Action would be negligible. Mason Valley WMA Transmission Alternative A would be similar to the impacts on the Lahontan cutthroat suitable habitat from the Proposed Action.

#### **Southwestern Willow Flycatcher, Yellow-billed Cuckoo, and Yuma Ridgway's Rail**

The Mason Valley WMA Transmission Alternative A and the Proposed Action would not occur within suitable breeding habitat for the southwestern willow flycatcher and Yuma Ridgway's rail and these Action Alternatives would not increase or reduce the impacts on breeding habitat. Breeding habitat for the yellow-billed cuckoo has the potential to occur where the Mason Valley WMA Transmission Alternative A and the Proposed Action would cross the Walker River. However, the areas where the Action Alternatives would cross the Walker River (including the Proposed Action) are considered low-quality breeding habitat. Regardless of the current quality of the breeding habitat, yellow-billed cuckoo breeding season timing restrictions would be implemented for construction activities within approximately 0.25 miles of the Walker River. This timing restriction, regardless of alternative, would ensure that the construction activities do not disturb yellow-billed cuckoo during breeding activities. The impacts of the Mason Valley WMA Alternative A on breeding yellow-billed cuckoo would be negligible, similar to the Proposed Action.

The southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail could migrate or disperse over the alignments of the Mason Valley WMA Transmission Alternatives and the Proposed Action. Construction, O&M, and decommissioning noise, vehicle activity, and human presence may change these birds' behavior including diverting flight and perching away from the construction activities, though any occurrence of these birds would be brief and infrequent. The impacts of the Mason Valley WMA Transmission Alternatives on southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail would be negligible and similar to the Proposed Action.

### **3.1.4.8 Direct and Indirect Impacts from Carson River Transmission Line Route Group**

#### **Construction, Operations and Maintenance, and Decommissioning**

##### **Mount Charleston Blue Butterfly, Mojave Desert Tortoise, and Federally Listed Plant Species**

The Carson River Transmission Alternatives would occur outside the range for the Mount Charleston blue butterfly, Mojave desert tortoise, and the seven federally listed plant species. Therefore, there would be no impacts to any of these species from construction, O&M, and decommissioning activities associated with the Carson River Transmission Alternatives.

##### **Bi-State Sage-grouse**

The Carson River Transmission Alternative A would shift the Fort Churchill to Comstock Meadows #2 345-kV transmission line to cross the Carson River adjacent to the Fort Churchill to Comstock Meadows #1 345-kV transmission line, consolidating the number crossing locations. The Proposed Action would cross the Carson River approximately four miles east of the Carson River Transmission Alternative A route. The types of impacts to the Bi-State sage-grouse under the Carson River Alternative A from construction, O&M, and decommissioning would be similar to the Proposed Action.

Portions of the Carson River Transmission Alternatives A and C and the Proposed Action would all occur within the Pine Nut PMU. Table 3-22 compares the acres of temporary and permanent ROW areas for these alternatives with the Proposed Action. The Proposed Action would contain the most PMU area within temporary ROW area, followed by the Beatty Transmission Alternative C, then the Beatty Transmission Alternative A. The Beatty Transmission Alternative A would contain the most PMU area within the permanent ROW area, followed by the Proposed Action, then the Carson River Transmission Alternative C.

**Table 3-22. Carson River Transmission Alternatives Estimated Temporary and Permanent ROW Areas within Bi-State PMU**

<b>Alternative</b>	<b>Pine Nut PMU Size (acres)</b>	<b>Temporary ROW Area (acres)</b>	<b>Permanent ROW Area (acres)</b>
Carson River Transmission Alternative A	574,372	2,952.7	1,031.6
Carson River Transmission Alternative C	574,372	3,152.8	892.9
Proposed Action	574,372	3,545.7	999.0

*Table Acronym(s):* PMU – Population Management Unit; ROW – Right-of-way

The Carson River Transmission Alternatives A and C and the Proposed Action would not occur within Bi-State sage-grouse habitat. Carson River Transmission Alternative C would include approximately 6.8 acres of temporary ROW and a pull site within Bi-State sage-grouse proposed critical habitat, while Carson River Alternative A and the Proposed Action would not occur within proposed critical habitat. To minimize impacts on proposed critical habitat along Carson River Transmission Alternative C, EMM BSSG-16 (Appendix C) would be implemented which requires that all construction related activities occur outside of the proposed critical habitat boundary. Therefore, impacts on proposed critical habitat from Carson River Transmission Alternative C would be similar to the Proposed Action.

The Carson River Transmission Alternative A would collocate approximately 15.1 miles of the three 345-kV transmission lines together within the Pine Nut PMU with an existing transmission line, whereas the Proposed Action Fort Churchill to Comstock Meadow #1 transmission line would not be collocated with other two proposed 345-kV transmission lines or existing transmission lines. The Carson River Transmission Alternative C would also collocate approximately 15.5 miles of the three 345-kV transmission lines together within the Pine Nut PMU with an existing transmission line. Impacts in areas where the Carson River Transmission Alternatives A and C would be collocated with existing transmission lines may be less compared to the Proposed Action because similar impacts are already present along the existing transmission infrastructure. In addition to human noise and presence during construction and O&M activities, habitat removal, additional fragmentation, and degradation would still occur in areas where collocation is proposed under the Carson River Transmission Alternatives A and C. Bi-State sage-grouse are likely to already avoid the area around the existing transmission lines and the addition of the Carson River Transmission Alternatives A and C adjacent to the existing transmission lines would likely result in an increase in the total area of avoidance with the existing transmission and new GLWP transmission line combined.

**Lahontan Cutthroat Trout and Northwestern Pond Turtle**

The river crossings associated with the Carson River Transmission Alternatives A and C and the Proposed Action would all contain suitable habitat for the Lahontan cutthroat trout and northwestern pond turtle. Neither species is known to reside within this section of the Carson River where the Carson River Transmission Alternatives or the Proposed Action would cross the river.

Shifting the Carson River Transmission Alternative A Fort Churchill to Comstock Meadows #2 345-kV transmission line to cross the Carson River adjacent to the Fort Churchill to Comstock Meadows #1 345-kV transmission line would consolidate the number of crossing locations. The Carson River Transmission Alternative A would require relatively the same amount of temporary and permanent ROW areas as the Proposed Action, just in a different location. The Carson River Transmission Alternative A would include approximately 33.9 acres of the temporary and approximately 11.0 acres of the permanent ROW areas in riparian vegetation at the Carson River. The Carson River Transmission Alternative C would include approximately 28.1 acres of the temporary and approximately 4.9 acres of the permanent ROW areas in riparian habitat. The Proposed Action would include approximately 51.2 acres of the temporary and approximately 11.9 acres of the permanent ROW areas in riparian vegetation. Impacts to riparian vegetation from trimming and removal within the ROW would be minimized to the extent feasible (Appendix C. EMM BIO-35).

Vegetation density along the river crossings by the Carson River Transmission Alternatives A, C, and the Proposed Action would require similar riparian vegetation removal/modifications within the temporary and permanent ROW areas. Impacts associated with habitat degradation from vegetation removal, soil movement, and runoff would be negligible for the Lahontan cutthroat trout and the northwestern pond turtle under for the Carson River Transmission Alternatives A, C, and the Proposed Action.

#### **Southwestern Willow Flycatcher, Yellow-billed Cuckoo, and Yuma Ridgway's Rail**

The Carson River Transmission Alternatives A and C and the Proposed Action would occur outside the range for the southwestern willow flycatcher and Yuma Ridgway's rail. The Carson River contains marginal suitable breeding habitat for the yellow-billed cuckoo. The potential for breeding habitat would be low because riparian vegetation along the Carson River at the crossing of the Carson River Transmission Alternatives A and C and the Proposed Action is sparse and limited populations of the species occur in the region.

The Carson River Transmission Alternative A would consolidate the location of the 345-kV transmission lines crossings of the Carson River. Consolidating the transmission line crossings over the Carson River would not result in any notable change in impacts on habitat compared to the Proposed Action. Two of the 345-kV transmission lines associated with Carson River Transmission Alternative C would cross in the same corridor as the Proposed Action. The Comstock Meadows #2 transmission line associated with Carson River Transmission Alternative C would cross the Carson River approximately 6.3 miles downstream from the two 345-kV transmission lines.

Direct impacts on breeding yellow-billed cuckoos would be avoided with the implementation of breeding season timing restrictions at the Carson River (Appendix C. EMM BIO-20). Yellow-billed cuckoos could migrate or disperse along the Carson River and potentially collide with transmission line wires. Collision with power lines is more common where power lines cross rivers, lakes, and wetlands (APLIC 2012). The BBCS (Appendix H) includes measures to design the transmission lines (e.g., by installation of line markers or other methods as described in APLIC-suggested practices) (APLIC 2012) to reduce the potential for bird collision along the Carson River. With implementation of the BBCS (Appendix H) and EMMs (refer to Appendix C. EMMs BIO-5 and BIO-36), the potential for impacts on yellow-billed cuckoo, during migration and dispersal would be unlikely during the construction, O&M, and decommissioning of the Carson River Transmission Alternatives A, C, and the Proposed Action. Because the number of crossings over the Carson River would be the same under Carson River Transmission Alternatives A and C as the Proposed Action, the impacts on the yellow-billed cuckoo would be similar.

### 3.1.4.9 Direct and Indirect Impacts from Amargosa Substation Group

#### **Construction, Operations and Maintenance, and Decommissioning**

##### **Bi-State Sage-grouse, Lahontan Cutthroat Trout, Mount Charleston Blue Butterfly, Northwestern Pond Turtle, and Federally Listed Plant Species**

The Amargosa Substation Alternatives occur outside the range for the Bi-State sage-grouse, Lahontan cutthroat trout, Mount Charleston blue butterfly, northwestern pond turtle, and the seven federally listed plant species. Therefore, no impacts to any of the species are anticipated from the construction, O&M, and decommissioning activities associated with the Amargosa Substation Alternatives.

##### **Mojave Desert Tortoise**

Both AS-1 and AS-2 (Proposed Action) would occur within suitable habitat for Mojave desert tortoise. AS-1 would result in approximately 109.8 acres and AS-2 (Proposed Action) would result in approximately 109.0 acres of permanent loss of Mojave desert tortoise suitable habitat. Impacts on habitat would be similar under AS-1 in comparison to AS-2 (Proposed Action).

Mojave desert tortoise surveys of the two substation alternatives found nine class 5 Mojave desert tortoise burrows and one class 2 burrow within the AS-2 (Proposed Action) boundary. The surveys also found 11 Mojave desert tortoise burrows ranging in classification from class 1 to class 5 and Mojave desert tortoise signs at 7 locations within the AS-1 boundary. More Mojave desert tortoise burrows and signs were found within the AS-1 alternative, which may result in greater impacts on individual desert tortoise in comparison to AS-2 (Proposed Action).

There would be approximately 61.3 acres of Priority II connectivity Mojave desert tortoise habitat in AS-1 and approximately 109.0 acres of Priority II connectivity Mojave desert tortoise habitat in AS-2 (Proposed Action). Impacts on Mojave desert tortoise connectivity would be greater under the AS-2 (Proposed Action) than AS-1.

##### **Southwestern Willow Flycatcher, Yellow-billed Cuckoo, and Yuma Ridgway's Rail**

The Amargosa Substation Alternatives would not occur within suitable breeding habitat for the southwestern willow flycatcher, yellow-billed cuckoo, or Yuma Ridgway's rail. These species could migrate or disperse over the Amargosa Substation Alternatives. Construction, O&M, and decommissioning noise, vehicle activity, and human presence may change these birds' behavior, including diverting flight and perching away from the construction activities, though any occurrence of these birds would be brief and infrequent. The impacts of the Amargosa Substation Alternatives on southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail would be negligible.

### 3.1.4.10 Direct and Indirect Impacts from Esmeralda Substation Group

#### **Construction, Operations and Maintenance, and Decommissioning**

##### **Bi-State Sage-grouse**

Both ES-1 and ES-3 would be located outside of the Bi-State sage-grouse PMUs and habitat. The ES-2 (Proposed Action) would be located within the White Mountains PMU (refer to Figure 3-3) and would result in approximately 109.1 acres of disturbance within the White Mountains PMU. However, this substation alternative would be located approximately 8.3 miles from the nearest Bi-State sage-grouse habitat located in the Silver Peak Range near Piper Peak.

**Lahontan Cutthroat Trout, Mount Charleston Blue Butterfly, Mojave Desert Tortoise, Northwestern Pond Turtle, and Federally Listed Plant Species**

The Esmeralda Substation Alternatives occur outside the range for the Lahontan cutthroat trout, Mount Charleston blue butterfly, Mojave desert tortoise, northwestern pond turtle, and the seven federally listed plant species. Therefore, no impacts to any of the species are anticipated from the construction, O&M, and decommissioning activities associated with the Esmeralda Substation Alternatives.

**Southwestern Willow Flycatcher, Yellow-billed Cuckoo, and Yuma Ridgway's Rail**

The Esmeralda Substation Alternatives would not occur within suitable breeding habitat for the southwestern willow flycatcher, yellow-billed cuckoo, or Yuma Ridgway's rail. These species could migrate or disperse over the Esmeralda Substation Alternatives. Construction, O&M, and decommissioning noise, vehicle activity, and human presence may change these birds' behavior, including diverting flight and perching away from the construction activities, though any occurrence of these birds would be brief and infrequent. The impacts of the Esmeralda Substation Alternatives on southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail would be negligible.

**3.1.4.11 Direct and Indirect Impacts from Amargosa Microwave Group**

**Construction, Operations and Maintenance, and Decommissioning**

**Bi-State Sage-grouse, Lahontan Cutthroat Trout, Mount Charleston Blue Butterfly, Northwestern Pond Turtle, and Federally Listed Plant Species**

The Amargosa Microwave Alternatives occur outside the range for the Bi-State sage-grouse, Lahontan cutthroat trout, Mount Charleston blue butterfly, northwestern pond turtle, and the seven federally listed plant species. Therefore, no impacts to any of the species are anticipated from the construction, O&M, and decommissioning activities associated with the Amargosa Microwave Alternatives.

**Mojave Desert Tortoise**

Mojave desert tortoise surveys of the AM-1 and AM-2 (Proposed Action) microwave sites found no live Mojave desert tortoises, burrows, carcasses, or sign within the survey area for both microwave sites. However, suitable habitat is present and Mojave desert tortoise may occur at both microwave site locations. Prior to construction, the microwave sites would be subject to Mojave desert tortoise clearance surveys. Mojave desert tortoises found would be relocated to outside the microwave site construction areas and exclusionary fencing would be installed to permanently exclude Mojave desert tortoise from the microwave site. The AM-1 and AM-2 (Proposed Action) would result in equal permanent disturbance to Mojave desert tortoise habitat (approximately 2.3 acres). Priority connectivity habitat for Mojave desert tortoise does not occur within either AM-1 or AM-2 (Proposed Action). Impacts on Mojave desert tortoise would be the same under both alternatives.

**Southwestern Willow Flycatcher, Yellow-billed Cuckoo, and Yuma Ridgway's Rail**

The Amargosa Microwave Alternatives would not occur within suitable breeding habitat for the southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail. These species could migrate or disperse over the Amargosa Microwave Alternatives. Construction, O&M, and decommissioning noise, vehicle activity, and human presence may change these birds' behavior, including diverting flight and perching away from the construction activities, though any occurrence of these birds would be brief and infrequent. The impacts of the Amargosa Microwave Alternatives on southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail would be negligible.



### **3.1.4.12 Impacts from Anti-Perching/Nesting Mitigation Measure**

The majority of the 525-kV transmission line associated with the Action Alternatives would use guyed lattice structures rather than tubular H-frame or monopole structures. The anti-perching/nesting mitigation measure would replace approximately 150 miles to 152 miles (depending on the Action Alternative) of the lattice structures in Mojave desert tortoise recovery unit areas to H-frame structures, and approximately 13 miles of the lattice structures in Bi-State sage-grouse habitat areas with H-frame structures. The estimated distance between H-frame structures is shorter, spaced approximately 1,140 feet apart, than the lattice structures which would be spaced approximately 1,520 feet apart. Depending on the Action Alternative, this would result in approximately 755 to 765 H-frame structures under the anti-perching/nesting mitigation measure areas, whereas there would be approximately 566 to 573 lattice structures in the same areas without the mitigation measures (an increase of approximately 25 percent of structures as a result of the anti-perching/nesting mitigation measure).

Permanent hardscaped surfaces from the increased number of towers and supporting concrete pads would be greater with the implementation of the anti-perching/nesting mitigation measure compared to the Proposed Action. Approximately 652 acres to 665 acres of vegetation would be cleared for structure pads in the anti-perching/mitigation measure areas, as compared to approximately 488 acres to 492 acres of vegetation clearing for structure pads without this mitigation measure.

#### **Construction, Operations and Maintenance, and Decommissioning**

##### **Bi-State Sage-grouse**

The anti-perching/nesting mitigation measure for the Bi-State sage-grouse would be applied to any Action Alternative occurring within approximately two miles of PACs and within approximately six miles of leks. This mitigation measure would result in an increase in the number of structures in Bi-State sage-grouse habitat located in the Mount Grant PMU (approximately two to three additional structures). The anti-perching/nesting mitigation measure would not change the transmission line route, size of temporary or permanent ROWs, or result in a substantial amount of additional disturbance necessary for construction in comparison to the Proposed Action within in Bi-State sage-grouse habitat. Compared to the Proposed Action, the effects associated with the increase in number of structures and ground disturbance under the anti-perching/nesting mitigation would be offset by the reduction of impacts associated with use of tubular structures and perch and nest deterrents rather than lattice structures.

While predation would still likely occur under implementation of the anti-perching/nesting mitigation measure, use of tubular structures with nesting and perch deterrent devices would reduce the concentration of raven predation directly around and near the transmission structures compared to the Proposed Action. As discussed under the Proposed Action impact analysis, guyed lattice structures provide more area for ravens and other raptors to perch and build nests, and in turn, forage on animals and waste nearby.

The Bi-State sage-grouse anti-perching/nesting mitigation measure combined with implementation of the Raven Management Plan (Appendix G) would reduce impacts on the Bi-State sage-grouse during O&M where the transmission line alignment would cross through Bi-State sage-grouse habitat compared to the Proposed Action. Under the anti-perching/nesting mitigation measure, approximately 11.3 miles of the 525-kV transmission line would be constructed using H-frame tubular structures in the Mount Grant PMU rather than guyed lattice structures under the Proposed Action. Additionally, approximately 26.6 miles of the approximate 41.2 miles of the 345-kV transmission tubular structures in the Pine Nut PMU would be constructed with nesting and perching deterrent devices.

### **Lahontan Cutthroat Trout, Mount Charleston Blue Butterfly, and Northwestern Pond Turtle**

The anti-perching/nesting mitigation measures would be located outside the range for the Lahontan cutthroat trout, Mount Charleston blue butterfly, and northwestern pond turtle. The anti-perching/nesting mitigation measures would have no impact on any of these species or their habitats.

### **Mojave Desert Tortoise**

The additional mitigation measure identified for the Mojave desert tortoise would be applied to GLWP structures within the boundaries of the Mojave desert tortoise recovery units, including the Proposed Action; Transmission Alternatives Losee A, TUSK B, Beatty A, C, G, K, and L; Amargosa Substation Alternatives (AS-1 and AS-2 [Proposed Action]); and Amargosa Microwave Site Alternatives (AM-1 and AM-2 [Proposed Action]). The mitigation measure would not change the transmission line route or size of temporary or permanent ROW but would increase the amount of disturbance necessary for construction of the tubular steel structures in Mojave desert tortoise habitat. The anti-perching/nesting mitigation measure would replace approximately 150 miles to 152 miles of the lattice structures in Mojave desert tortoise recovery unit areas with H-frame structures, depending on the Action Alternative. The estimated distance between H-frame structures is shorter (approximately 1,140 feet apart) than the lattice structures (approximately 1,520 feet apart). This would result in approximately 695 to 704 H-frame structures under the anti-perching/nesting mitigation measure in Mojave desert tortoise recovery units, whereas there would be approximately 521 to 528 lattice structures in the same areas without the mitigation measure (an approximately 25 percent increase in the number of structures under the anti-perching/nesting mitigation measures). There would be more ground disturbance as a result of the additional H-frame structures. The effects associated with the increase in number of structures under the mitigation of these Action Alternatives would be offset by the reduction of impacts associated with use of tubular structures rather than lattice structures, as described below.

The Mojave desert tortoise anti-perching/nesting mitigation measure would result in less impacts on Mojave desert tortoises because only tubular structures with perch and nesting deterrent devices would be used where the transmission line alignment would cross through the Eastern Mojave and Northeastern Mojave Recovery Units. Use of tubular structures with perch and nesting prevention devices would reduce the concentration of raven predation directly around and near the transmission structures compared to the approximately 151 miles of lattice structures proposed under the Proposed Action without the mitigation measure, minimizing impacts on individual Mojave desert tortoise and local populations. The anti-perching/nesting mitigation measure, combined with implementation of the Raven Management Plan (includes raven monitoring measures and use of perch deterrents; Appendix G) would result in less impacts under the Proposed Action and the Losee A, TUSK B, and Beatty A, C, G, K, and L Transmission Alternatives on Mojave desert tortoises in comparison to these Action Alternatives without the mitigation measure.

### **Southwestern Willow Flycatcher, Yellow-billed Cuckoo, and Yuma Ridgway's Rail**

The anti-perching/nesting mitigation measure would have no impact to the Yuma Ridgway's rail as they occur outside the range for the species. The anti-perching/nesting mitigation measure would include the portions of the Beatty Transmission Alternatives that would cross the Amargosa River, which contains suitable habitat for the southwestern willow flycatcher and yellow-billed cuckoo. However, the anti-perching/nesting mitigation measure would not result in an impact to these bird species from construction, O&M, and decommissioning of the Action Alternatives because measures would be included that require construction, decommissioning, vegetation removal, and ground maintenance work located within approximately 0.25 miles of the Amargosa River to occur outside the breeding seasons for the

yellow-billed cuckoo and southwestern willow flycatcher (Appendix C. EMM BIO-20) regardless of structure type or location.

### **Federally Listed Plant Species**

The anti-perching/nesting mitigation measure would replace approximately 3.7 miles of the lattice structures in suitable habitat for Ash Meadows sunray, Ash Meadows ivesia, and Ash Meadows blazing star and approximately 3.1 miles in suitable habitat for Ash Meadows milkvetch with H-frame structures. The Action Alternatives without the mitigation measure (lattice structures) would result in approximately 13 structures in suitable habitat for Ash Meadows sunray, Ash Meadows ivesia, and Ash Meadows blazing star and approximately 11 structures in suitable habitat for Ash Meadows milkvetch. The Action Alternatives with the mitigation measure (H-frame structures) would result in approximately 17 structures in suitable habitat for Ash Meadows sunray, Ash Meadows ivesia, and Ash Meadows blazing star and approximately 14 structures in suitable habitat for Ash Meadows milkvetch (an approximately 25 percent increase in the number of structures under the anti-perching/nesting mitigation measures). This increase in structures would result in more disturbance in suitable habitat for these federally listed plant species. Each structure requires an approximate 200-foot by 200-foot area that is permanently maintained during O&M of the transmission lines, which would result in the permanent loss of approximately 3.9 acres more suitable habitat for Ash Meadows sunray, Ash Meadows ivesia, and Ash Meadows blazing star and loss of approximately 3.3 acres more suitable habitat for Ash Meadows milkvetch than the Action Alternatives without the mitigation measure.

The Proposed Action would not occur in suitable habitat for spring-loving centaury. Beatty Transmission Alternatives A, K, and L would include approximately 173 feet of suitable habitat, and Beatty Alternative C would include 46 feet of suitable habitat. However, 2023 surveys for spring-loving centaury found that these areas of suitable habitat were not occupied by spring-loving centaury plants (BIO-WEST 2024). The difference in span length between the lattice structures (approximately 1,520 feet apart) versus the H-frame structures (approximately 1,140 feet apart) would not impact suitable habitat because both the H-frame and lattice structures would be sited outside of suitable habitat for spring-loving centaury (Appendix C. EMM BIO-49).

Survey identified no suitable habitat within the Action Alternatives temporary or permanent ROW areas for Amargosa niterwort and Ash Meadows gumplant. The anti-perching/nesting mitigation measure occurs outside the range of these two federally listed plant species and would have no impact on these species or their habitats.

## **3.2 General Vegetation**

Refer to Appendix AB. Other Resources/Uses Analyzed in Detail for a discussion of the affected environment and environmental consequences associated with general vegetation from the implementation of the Action and No Action Alternatives. Any changes that have been made to Section 3.2 are a result of comments and input on the Draft EIS/RMPA. Refer to Section 3.18.6.2 for the cumulative impacts associated with general vegetation.

## **3.3 Special Status Species**

In this section, “special status” includes species protected under applicable laws and regulations as well as species of concern to land management agencies with jurisdiction within the GLWP area. Species listed or proposed under the Endangered Species Act (ESA) are excluded from this section because they are

analyzed separately in Section 3.1 Federally Listed Species. Similarly, impacts to special status eagles are excluded from this section as they are discussed in Section 3.4 Bald and Golden Eagles.

### 3.3.1 Issues Identified for Analysis

- How would construction, O&M, and decommissioning of the GLWP affect habitat, movement, and behavior of the special status species and migratory birds from vegetation removal, change in predator species, habitat fragmentation, noise, vehicular movement, and night light pollution?
- How would disturbances (noise, presence of humans, vegetation removal) and the timing of that disturbance affect migratory birds and other special status species?
- What would be the impacts to birds and bats from collision and electrocution from the transmission lines?

### 3.3.2 Analysis Area and Methodology

#### Analysis Area

The analysis areas for special status species are described in Table 3-23. The analysis areas are defined by the geographic extent of the furthest reaching effects of the Proposed Action and the other Action Alternatives. The special status species analysis areas contain the temporary transmission line ROW, existing and new access roads excluding state and interstate highways, and other components with a buffer that varies by disturbance type and taxa.

**Table 3-23. Special Status Species Analysis Areas**

<b>Species Group</b>	<b>Analysis Area Buffer</b>	<b>Analysis Area (est. acres)</b>	<b>Analysis Area (est. square miles)</b>
Fish and Wildlife	Temporary ROW area plus a 0.5-mile buffer	804,943	1,258
Plants	Temporary ROW area plus a 1,640-foot buffer	412,108	644

*Table Acronym(s):* Est. – Estimated; ROW – Right-of-way

#### Methodology

Special status species that are known to occur or could potentially occur in the special status species analysis areas include:

- BLM sensitive species (BLM 2023b)
- Candidate species for listing under the federal ESA (USFWS 2023b)
- Birds listed under the Migratory Bird Treaty Act (MBTA) (16 USC 703-712) including USFWS Birds of Conservation Concern (BCC) (USFWS 2023b)
- Nevada Critically Endangered Flora (Nevada Administrative Code [NAC] 527.010)
- NDNH At Risk Plant and Animal Tracking List (NDNH 2021a)
- TUSK sensitive species (personal communication E. Eichenberg 2021)

The special status species are separated for analysis into the following groups: special status plants, terrestrial wildlife, aquatic wildlife, and birds and bats. Special status terrestrial wildlife includes all vertebrate and invertebrate species that are terrestrial in nature during some portion of their life cycle

such as amphibians, mammals, insects, and reptiles. In addition, insects such as lepidopterans (e.g., butterflies, moths) and hymenopterans (e.g., bees) are included in special status terrestrial wildlife due to their strong associations with terrestrial vegetation. Special status aquatic species includes all vertebrate and invertebrate species that are aquatic in nature throughout most of their life cycle such as fish, mollusks, and aquatic insects. Refer to Section 3.1 Federally Listed Species and Section 3.4 Bald and Golden Eagles for detailed analyses of these species.

Species considered for individual review for GLWP-related impacts include the 469 species listed on the BLM Sensitive Species List for Nevada that occur within the SNDO, Battle Mountain District Office (BMDO), and/or CCDO (BLM 2023b); 14 species listed as Sensitive by the TUSK (personal communication Erin Eichenberg 2021); 168 species on the NDNH At-Risk Plant and Animal Tracking list (NDNH 2021b); and 21 species listed as Nevada Critically Endangered Flora (NAC 527.010). A list of migratory birds of particular concern for the GLWP was compiled using the USFWS' IPaC System (USFWS 2023b). The IPaC System identified bird species within the GLWP area on the USFWS' BCC list or that warrant special attention. Wild horses and burros were considered for individual review because they receive species-specific management under the BLM's Wild Horse and Burro Program (BLM 2022b) (refer to Section 3.13.3.8 Wild Horses and Burros).

Between the Draft EIS/RMPA and the Final EIS/Proposed RMPA, 186 BLM sensitive species were added for evaluation based on additions in the November 2023 BLM Nevada sensitive species list (BLM 2023b). Of these 186 BLM sensitive species that were added, 104 species were determined to not be present within the respective special status species analysis areas, 26 have a low potential to occur within the respective analysis areas, and 56 species have moderate or high potential to occur within the respective analysis areas. While these species were not included on the previous 2017 BLM sensitive species list, the BLM considered the effects of the GLWP on these species in the Draft EIS/RMPA under Sections 3.2 General Vegetation and 3.5 General Wildlife. Additionally, impacts from the Action Alternatives on these species would be similar to impacts addressed in the Draft EIS/RMPA. Therefore, a supplemental EIS was not required because the impacts to these species discussed in Section 3.3.4 would not result in effects outside of the spectrum of effects analyzed in the Draft EIS/RMPA (BLM 2008b).

The potential for each species to occur within the special status species analysis areas was evaluated using range and life history information provided by NDOW (2024), the NDNH (2021b, 2023), Clark County (Nussear 2018; Nussear and Simandle 2020), and publicly available information provided by iNaturalist (2023), Global Biodiversity Information Facility (GBIF) (USGS 2023), NatureServe Explorer (2024), SEINet (2024), Wildlife Action Plan Team (NDOW 2012), and eBird (2023).

Special status species detected during formal or informal surveys of the analysis area and vicinity were also considered. This information includes surveys for bird, plant, and bat species conducted on TUSK (Moqtaderi and Dernovsek 2023; WEST 2023a, 2023c). Special status plant inventory/habitat surveys were also conducted for the Churchill Narrows buckwheat (*Eriogonum diatomaceum*), white-margined beardtongue (*Penstemon albomarginatus*), and Las Vegas bearpoppy (*Arctomecon californica*) (DeMasters et al. 2023; Silver Sage Eco 2023a, 2023b). Incidental locations of burrowing owls (*Athene cunicularia*) and desert bighorn sheep (*Ovis canadensis nelsoni*) collected during Mojave desert tortoise surveys (Monks and Logan Simpson 2024). Additional information was obtained from plant surveys conducted in support of the proposed Bonanza Solar Project and Anglo Goldfield Ashanti Project (Environmental Resource Management 2024; Heritage Environmental Consultants LLC 2021). Each species was then assigned a potential to occur evaluated based on a four-tier ranking system described in Table 3-24.

**Table 3-24. Special Status Species Potential to Occur Categories**

<b>Potential to Occur Category</b>	<b>Description</b>
None	Species has not been documented in the analysis area, the analysis area is outside the species' known range, and/or no suitable habitat is present.
Low	Species has not recently been documented in the analysis area, existing habitat conditions in the analysis area preclude the establishment of viable populations, or the species ranges widely and individuals could incidentally occur in the analysis area.
Moderate	Species has not been recently documented in the analysis area, but potentially suitable habitat is present and there is a reasonable likelihood for the species to occur in the analysis area.
High	Species has been recently documented in the analysis area or there is a high likelihood of occurrence based on the species' known range and/or the presence of suitable habitat.

In addition to evaluating impacts to individual species, GLWP-related impacts were assessed to migratory birds as a group. The migratory bird analysis includes an assessment of impacts to areas identified by the National Audubon Society as Important Bird Areas (IBAs) as well as a non-eagle raptor nests identified during pre-project surveys conducted between 2021 and 2023 (Moqtaderi et al. 2023).

### **3.3.3 Affected Environment**

#### **Ecological Setting**

The GLWP would occur within 2 EPA Level III Ecoregions and 14 Level IV Ecoregions (refer to Figure AB-1 in Appendix AB) (Bryce et al. 2003). The portion of the GLWP north of Beatty is located within the Central Basin and Range Level III Ecoregion. This ecoregion's topography is comprised of northerly trending fault-block ranges and intervening drier basins. Remnants of the Pleistocene-era Lake Lahontan remain as extensive, nearly flat playas and internally draining rivers covered by fine textured, alkaline, or saline deposits throughout the Central Basin. South of Beatty, the GLWP occurs within the Mojave Basin and Range Level III Ecoregion. This ecoregion's topography contains broad desert basins with scattered mountains that are generally lower, warmer, and drier than the Central Basin to the north.

A total of 32 land cover types have been mapped in the GLWP area by the SWReGAP (Lowry Jr. et al. 2005). General land cover types within the special status species analysis areas include desert scrub (75 percent), arid shrubland/grassland (16 percent), pinyon-juniper woodland (4 percent), and playa and riparian areas (3 percent). The remaining two percent of the GLWP area is made up of several land cover types including cliff/rock outcrops, urban areas, mining areas, desert pavement, barren lands, and recently burned areas. Refer to Appendix E for detailed descriptions of land cover types within the special status species analysis area. Landforms and other locations pertinent to the special status species discussion are depicted in Figure 3-11 and Figure 3-12.

#### **Special Status Species with Potential to Occur in the Analysis Areas**

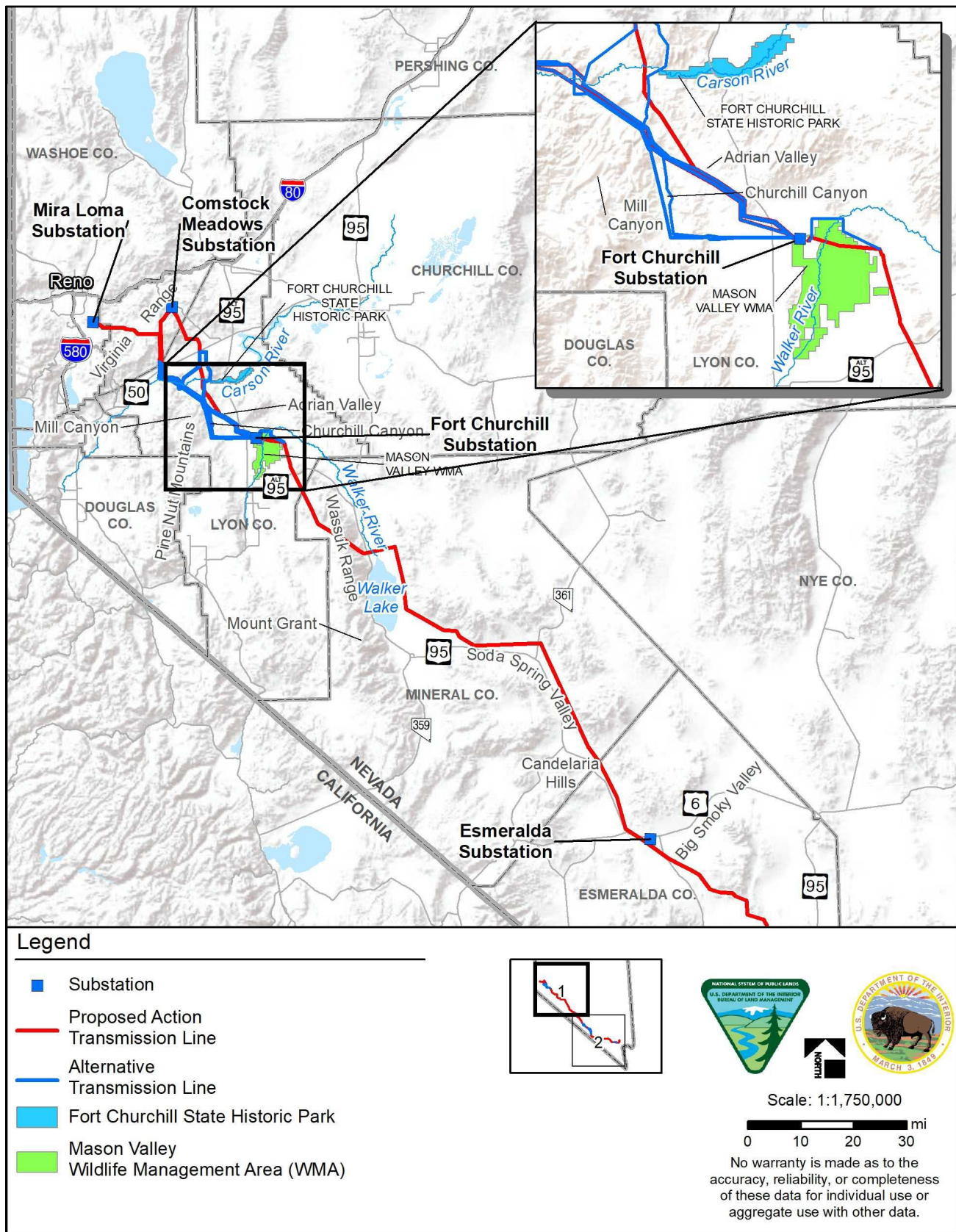
Refer to Appendix I – Special Status Species Considered for review provides information on the special status species' habitat associations, range, and potential to occur within the special status species analysis areas. There are 86 plants, 45 birds, 35 mammals, 14 reptiles, 38 insects, 2 fish, 3 amphibians, 4 arachnids, and 10 mollusk species that are BLM Sensitive, TUSK Sensitive, NDNH At-Risk Plant and Animal Tracking list species, Nevada Critically Endangered Flora species, BCC, or candidates for federal listing that are known to occur or could potentially occur within the special status species analysis areas. Of these, there are 134 species with a high potential to occur and 49 species with a moderate potential to occur in the special

status species analysis areas that are carried forward for detailed analysis (refer to Table 3-25. Special Status Plants; Table 3-26. Special Status Terrestrial Wildlife; Table 3-27. Special Status Aquatic Species; and Table 3-28. Special Status Birds and Bats<sup>9</sup>). The remaining 55 special status species were identified as having a low potential to occur within the special status species analysis areas. Impacts to special status species with a low potential to occur are considered negligible because these special status species are unlikely to be present. Detailed analysis of special status species with a low potential to occur is not warranted in this Final EIS/Proposed RMPA.

Species protected under the MBTA are known to occur or have the potential to occur within the special status wildlife analysis area. Raptor nest surveys of the proposed alignment and two-mile buffer conducted between 2021 and 2023 identified a total of 367 active, inactive, unoccupied, and unknown status raptor and corvid nests (Moqtaderi et al. 2023). The 16 actively occupied nests consisted of nine red-tailed hawk, one peregrine falcon, three great-horned owl, and three common raven nests. As the survey methods, including survey timing, were established to focus on detection of eagles and eagle-suitable large stick nests, it is possible that nests classified as inactive may have been utilized by non-eagle raptors later in the 2021 and 2023 breeding seasons. Survey results for golden eagles are discussed in Section 3.4 Bald and Golden Eagles. Five IBAs designated by the National Audubon Society occur within the special status species analysis area: the Spring Mountains, Oasis Valley, Mount Grant, Carson River Delta, and Walker Lake IBAs. The majority of the Spring Mountains IBA occurs within the USFS-administered Spring Mountains NRA. The Spring Mountains were designated as an IBA because they contain a high number of vegetation zones and that support a high level of biological diversity (National Audubon Society 2013). The Oasis Valley IBA occurs on private and BLM-administered lands. This IBA includes the Amargosa River, which is one of only two north-to-south-riparian corridors available to migrating birds within southern Nevada (National Audubon Society 2008b). The Oasis Valley IBA is one of the rare routes that guarantees water for migrating birds between the Mojave Desert and the Great Basin. Although the Amargosa River is mostly ephemeral, there are short stretches of permanent flowing water.

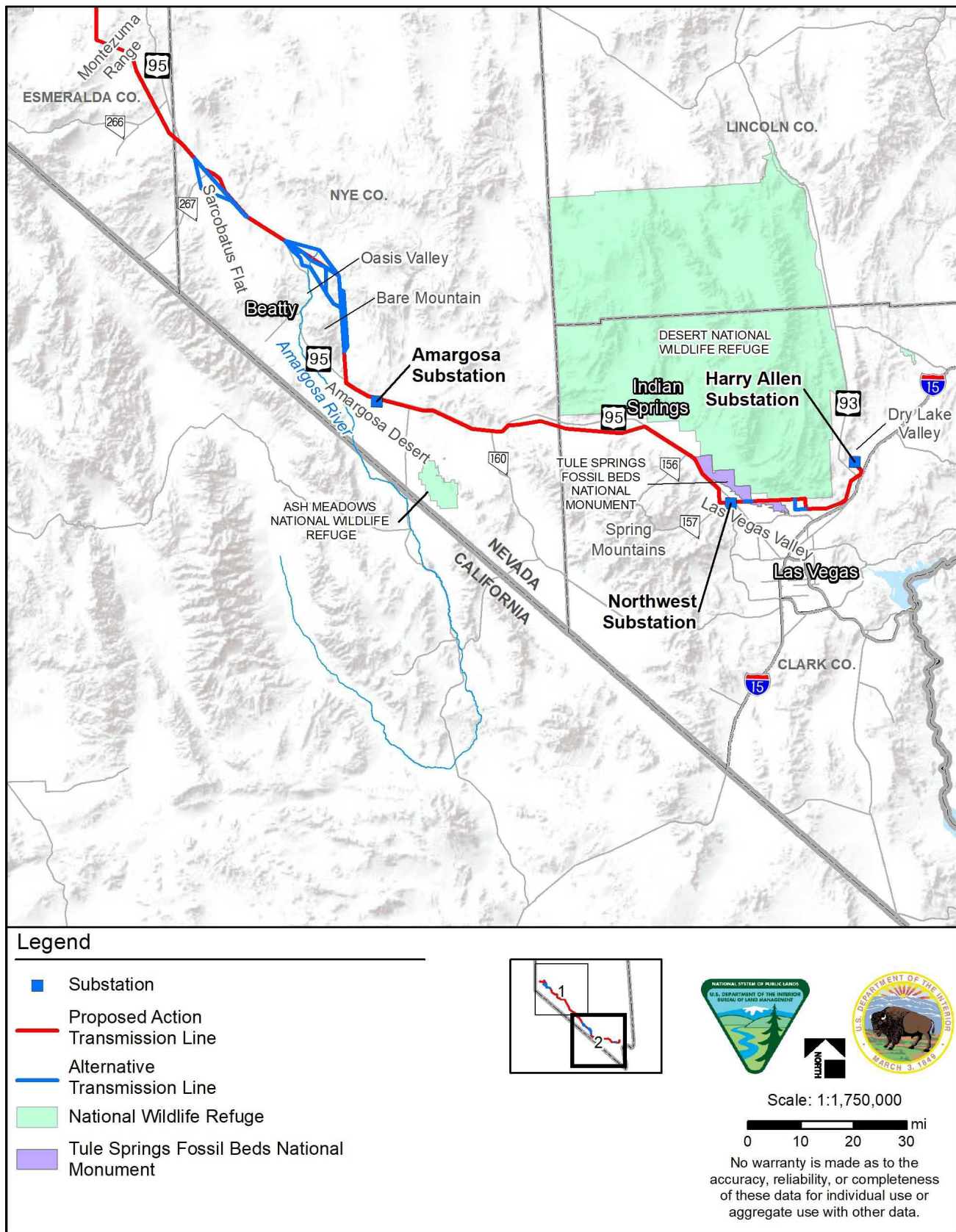
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<sup>9</sup> Table 3-25 through Table 3-28 identifies which special status species are covered or evaluated under the Clark County Multiple Species Habitat Conservation Plan (MSHCP); (Clark County 2016 under the status column). Clark County MSHCP covered and evaluated species that are not special status species, as defined under Methodology in 3.3.2, are assessed generally under Section 3.5. General Wildlife.



**Figure 3-11. Topographic and Important Features (1 of 2)**





**Figure 3-12. Topographic and Important Features (2 of 2)**

**Table 3-25. Special Status Plants with Moderate to High Potential to Occur within the Special Status Plant Analysis Area**

Common Name Scientific Name	Status	General Habitat Requirements	Potential
Alexander's buckwheat <i>Eriogonum alexanderae</i>	BLM S	Light-colored clay outcrops, hillsides, and badlands in shadscale, sagebrush, and pinyon-juniper zones	Moderate
Altered andesite popcornflower <i>Plagiobothrys glomeratus</i>	BLM S	Dry, shallow, acidic gravelly clay soils derived from sulfide deposits formed in andesite	High
Amargosa buckwheat <i>Eriogonum contiguum</i>	BLM S	Sandy to gravelly flats and slopes, rocky hills, and lower bajadas	Moderate
Ash Meadows ladies' tresses <i>Spiranthes infernalis</i>	BLM S	Wet alkaline meadows near the edges of spring outflows	High
Black woollypod <i>Astragalus funereus</i>	BLM S NVD CE MSHCP ES <sub>p</sub>	Dry, open scree, talus, or gravelly alluvium derived from volcanic tuff, primarily on eastern and southern aspects of steep slopes	High
Bristlecone pine <i>Pinus longaeva</i>	BLM S	Dry, rocky ridges and slopes with low precipitation in alpine or subalpine climates	High
Bullfrog Hills sweetpea <i>Lathyrus hitchcockianus</i>	BLM S NVD CE	Washes and canyon bottoms in volcanic gravelly or sandy soils; associated with desert scrub above the creosote bush zone	High
Cactus Family Species <i>Cactaceae</i>	BLM S NV Flora	Arid climates with low rainfall	High
Candelaria blazing star <i>Mentzelia candelariae</i>	BLM NVD CE	Barren, often calcareous, gravelly or clay soils on weathered volcanic ash deposits, scree slopes, hot spring mounds, washes, road banks or other disturbed sites	High
Charleston grounddaisy <i>Townsendia jonesii</i> var. <i>tumulosa</i>	BLM S MSHCP CS	Bristlecone pine, mixed conifer, and pinyon-juniper communities in shallow gravelly soils along ridges, rocky outcrops, and slopes	High
Charleston violet <i>Viola charlestonensis</i>	BLM S	Woodland and forest floors in pinyon-juniper woodland, montane conifer forest, and lower subalpine conifer forests	High
Churchill Narrows buckwheat <i>Eriogonum diatomaceum</i>	BLM S NVD CE NVD Flora	Dry, relatively barren and undisturbed, white to yellowish-tan, clay to silty diatomaceous deposits of the Coal Valley Formation, on low ridges, hills, and especially small drainages. Known to exist in four populations that are restricted to approximately three square miles in the vicinity of the Churchill Narrows, Lyon County. Spatial data provided by the BLM identified approximately 17.9 acres of occupied habitat for Churchill Narrows buckwheat in Nevada, all in the vicinity of Churchill Narrows (BLM 2012a). Surveys conducted in 2023 identified approximately 453 acres of Churchill Narrows buckwheat suitable habitat within the special status species plant analysis area (Silver Sage Eco 2023a).	High
Cima milkvetch <i>Astragalus cimae</i> var. <i>cimae</i>	BLM S NVD CE	Dry, open, relatively barren calcareous gravel slopes or clay hills between 5,100 to 6,416 feet	High
Clark Mountain green gentian <i>Frasera albomarginata</i> var. <i>induta</i>	BLM S	Dry, open, rocky calcareous slopes, often along small drainages	Moderate

**Table 3-25. Special Status Plants with Moderate to High Potential to Occur within the Special Status Plant Analysis Area  
(continued)**

<b>Common Name Scientific Name</b>	<b>Status</b>	<b>General Habitat Requirements</b>	<b>Potential</b>
Clarke phacelia <i>Phacelia filiae</i>	BLM S NVD CE	Calcareous and gypsiferous sandstone, siltstone, tuffaceous claystone, or limestone, on foothills and valley floors above the playas	Moderate
Clokey buckwheat <i>Eriogonum heermannii</i> var. <i>clokeyi</i>	BLM S NVD CE MSHCP ESsp	Carbonate outcrops, talus, scree, and gravelly washes and banks in the creosote-bursage, shadscale, and blackbrush zones at elevations between 4,000 and 6,000 feet	High
Clokey cryptantha <i>Cryptanthah clokeyi</i>	BLM S	Alluvial gravel and cobbles, often along small drainages	High
Clokey mountain sage <i>Salvia dorrii</i> var. <i>clokeyi</i>	BLM S MSHCP CS	Bristlecone pine, mixed conifer, pinyon-juniper communities, along drainages and ridges with bedrock outcrops	High
Death Valley beardtongue <i>Penstemon fruticiformis</i> var. <i>amargosae</i>	BLM S NVD CE MSHCP ESsp	Quartzite- and limestone-derived soils in sandy or gravelly washes within the creosote, saltbush, and blackbrush communities at elevations between 3,100 and 6,300	Moderate
Desert Mountain thistle <i>Cirsium arizonicum</i> var. <i>tenuisectum</i>	BLM S	Washes, rocky slopes, scrubland, drainages, roadsides, pine-oak-juniper woodland, and montane coniferous forests	High
Eastern Joshua Tree <i>Yucca jaegeriana</i>	BLM S NV CY	Flats, gentle slopes, mesas, and bajadas in igneous, silty, loamy, or sandy substrates in saline or alkaline conditions	High
Eastwood milkweed <i>Asclepias eastwoodiana</i>	BLM S NVD CE	Open areas on a wide variety of basic (pH >8) soils, including calcareous clay, sand, carbonate or basaltic gravels, and shale outcrops	High
Garrett's California fuchsia <i>Epilobium canum</i> ssp. <i>garrettii</i>	BLM S NV CY	Dry, rocky slopes or cottonwood canyons	Moderate
Halfring milkvetch <i>Astragalus mohavensis</i> var. <i>hemigyryus</i>	BLM S NVD CE MSHCP ESsp	Carbonate gravels and derivative soils on terraced hills and ledges, open slopes, and along washes in the creosote-bursage, blackbrush, and mixed shrub zones	High
Ivory-spined agave <i>Agave utahensis</i> var. <i>eborispina</i>	BLM S	Calcareous outcrops with desert scrub, limestone foothills, or volcanic rock outcrops	Moderate
Jaeger beardtongue <i>Penstemon thompsoniae</i> ssp. <i>jaegeri</i>	BLM S NVD CE MSHCP CS	Gravelly limestone soils on knolls, slopes, and small drainages, mostly under conifers or other woody species at elevations between 6,300 and 9,300 feet	Moderate
Jaeger ivesia <i>Ivesia jaegeri</i>	BLM S NVD CE MSHCP ESsp	Cracks and crevices in cliffs of limestone or sandstone and outcrops of dolomite in the bristlecone and mixed conifer communities at elevations between 5,200 and 11,200 feet	Moderate
Lahontan Basin buckwheat <i>Eriogonum rubricaula</i>	BLM S NVD CE	Dry, open, light-colored, and strongly alkaline shrink-swell clay soils on bluffs and badlands derived from silt, volcanic ash, or diatomaceous deposits	High

**Table 3-25. Special Status Plants with Moderate to High Potential to Occur within the Special Status Plant Analysis Area  
(continued)**

<b>Common Name Scientific Name</b>	<b>Status</b>	<b>General Habitat Requirements</b>	<b>Potential</b>
Las Vegas bearpoppy <i>Arctomecon californica</i>	BLM S NVD CE MSHCP CS TUSK NVD Flora	Open, dry, spongy, or powdery badlands or hummocked soils with high gypsum content, often with well-developed soil crust in areas of generally low relief with a sparse cover of other gypsum-tolerant species at elevations between 1,300 and 2,700 feet	High
Las Vegas buckwheat <i>Eriogonum corymbosum</i> var. <i>nilesii</i>	BLM S TUSK	Gypsum-rich soils in central and eastern Clark County and southern Lincoln County, Nevada	High
Lemmon buckwheat <i>Eriogonum lemmonii</i>	BLM S NVD CE	Open, light-colored, sometimes silty or sandy, sometimes gypsiferous shrink-swell clay soils on bluffs and badlands derived from fluviolacustrine silt and volcanic ash deposits in the shadscale zone	Moderate
Long Valley milkvetch <i>Astragalus johannis-howellii</i>	BLM S NVD CE	Sandy rhyolitic soils on flats and gentle slopes of mountains in the sagebrush zone	Moderate
Margaret rushy milkvetch <i>Astragalus convallarius</i> var. <i>margaretiae</i>	BLM S NVD CE	Rocky slopes and flats among sagebrush in the pinyon-juniper and sagebrush zones	High
Mojave [Virgin River] thistle <i>Cirsium mohavensis</i> [ <i>C. virginense</i> ]	BLM S NVD CE	Open, moist, alkaline soils around desert springs, streams, and ditches and on gypsum knolls at elevations between 1,500 and 9,000 feet	Moderate
Mojave fishhook cactus <i>Sclerocactus polyancistrus</i>	BLM S NV CY	Rocky alluvial, often alkaline soils with Mojave desert scrub	Moderate
Mono County phacelia <i>Phacelia monoensis</i>	BLM S NVD CE	Alkaline, barren or sparsely vegetated, shrink-swell clays of mostly andesitic origin on various slopes and aspects in the pinyon-juniper and mountain sagebrush zones	Moderate
Nevada dune beardtongue <i>Penstemon arenarius</i>	BLM S NVD CE	Deep, volcanic, sandy soils, commonly associated with four-winged saltbush, littleleaf horsebrush, and greasewood at elevations between 3,950 and 4,450 feet	High
Nevada suncup <i>Camissonia nevadensis</i>	BLM S NVD CE	Open, sandy, gravelly, or clay slopes and flats in the salt desert, shadscale, and lower sagebrush zones at elevations between 4,000 and 5,500 feet	High
Nye milkvetch <i>Astragalus nyensis</i>	BLM S	Foothills of desert mountains, calcareous outwash fans and gravelly flats, or sandy soil	Moderate
Nye pincushion cactus <i>Sclerocactus nyensis</i>	BLM S NVD CE	Dry, rocky soils and low outcrops of rhyolite, tuff, and possibly other rock types on gentle slopes in open areas or under shrubs in the upper salt desert and lower sagebrush zones	Moderate
Oryctes <i>Oryctes nevadensis</i>	BLM S NVD CE	Deep, loose sand on stabilized dunes, washes, and valley flats on various slopes and aspects	High
Pahute Mesa beardtongue <i>Penstemon pahutensis</i>	BLM S NVD CE	Loose soil and in rock crevices among boulders in the pinyon-juniper and sagebrush zone at elevations between 5,800 and 7,500 feet	Moderate
Parish phacelia <i>Phacelia parishii</i>	BLM S NVD CE	Moist to superficially dry, open, flat to hummocky, mostly barren, often salt-crusted, silty-clay soils on valley bottom flats, lake deposits, and playa edges, often near seepage areas, and sometimes on gypsum deposits at elevations between 2,500 to 5,600 feet	Moderate

**Table 3-25. Special Status Plants with Moderate to High Potential to Occur within the Special Status Plant Analysis Area  
(continued)**

<b>Common Name Scientific Name</b>	<b>Status</b>	<b>General Habitat Requirements</b>	<b>Potential</b>
Polished blazingstar <i>Mentzelia polita</i>	BLM S NVD CE	Limestone or gypseous soils in open areas in mixed desert shrub communities at elevations between 3,900 and 4,900 feet	Moderate
Reese River phacelia <i>Phacelia glaberrima</i>	BLM S NVD CE	Open, dry to moist, alkaline, nearly barren, sometimes scree-covered, shrink-swell clay soils derived from volcanic ash and tuff deposits, generally on the steeper slopes of low hills, bluffs, and badlands in the shadscale-greasewood, sagebrush, and lower pinyon-juniper zones at elevations between 4,100 and 6,000 feet	Moderate
Rosy twotone beardtongue <i>Penstemon bicolor</i> ssp. <i>roseus</i>	BLM S NVD CE	Rocky calcareous, granitic, or volcanic soils in washes, roadsides, scree at outcrop bases, rock crevices, or similar places receiving enhanced runoff in the creosote-bursage, blackbrush, and mixed-shrub zones	High
Rough angelica <i>Angelica scabrida</i>	BLM S NVD CE	Mixed conifer and aspen forests near springs, gravelly washes, ephemeral streams gullies, montane slopes, shady crevices, and avalanche chutes at elevations between 6,600 and 9,200 feet	Moderate
Sand cholla <i>Grusonia pulchella</i>	BLM S NVD CE	Sand dunes, dry-lake borders, river bottoms, washes, valleys, and plains in the desert; dependent on dunes or deep sand	High
Sodaville milkvetch <i>Astragalus lentiginosus</i> var. <i>sesquimetralis</i>	BLM S NVD CE NVD Flora	Aquatic or wetland-dependent species found growing on moist, open, alkaline hummocks and drainages near cool springs. Often in association with saltgrass, black greasewood, or alkali sacaton	High
Soft lupine <i>Lupinus malacophyllus</i>	BLM S	Sandy, gravelly, or clay slopes and flats in the sagebrush and pinyon-juniper zones	High
Starcup <i>Gymnosteris nudicaulis</i>	BLM S	Gently sloping flats or hillsides around sagebrush in gravelly soils	High
Steamboat monkeyflower <i>Diplacus [Mimulus] ovatus</i>	BLM S NVD CE	Dry to somewhat moist, often barren, loose, sandy to gravelly slopes derived from siliceous sinter deposited by hot springs, or from highly acidic, hydrothermally altered, andesite or rhyolite deposits in the sagebrush zone	Moderate
Threecorner milkvetch <i>Astragalus geyeri</i> var. <i>triquetrus</i>	BLM S NVD CE NVD Flora	Open, deep, sandy soil or dunes, generally stabilized by vegetation and/or a gravel veneer in Mojave desert scrub communities	Moderate
Tiehm's peppergrass <i>Stroganowia tiehmii</i>	BLM S NVD CE	Dry, open, very rocky clay soils or soil pockets in or near scree, talus, or boulder fields derived from basalt, other volcanic rocks, and/or fluviolacustrine sediments in the sagebrush, upper shadscale, and lower pinyon-juniper woodland zones. Endemic to 11 locations in the eastern Virginia Range and the northern fringe of the Pine Nut Range in Lyon County and the southeastern side of the Buckskin Range in northeastern Douglas County, Nevada. Two previously recorded populations of Tiehm's peppergrass are located within the analysis area of the 345-kV Fort Churchill to Comstock #1 transmission line (NDNH 2021b).	High
Tonopah milkvetch <i>Astragalus pseudiodanthus</i>	BLM S NVD CE	Deep, loose, sandy soils of stabilized and active dune margins, old beaches, valley floors, or drainages, with black greasewood and other salt desert shrubs at elevations between 4,550 and 6,000 feet	High
Wassuk beardtongue <i>Penstemon rubicundus</i>	BLM S NVD CE	Open, rocky to gravelly soils on perched tufa shores, steep decomposed granite slopes, rocky drainage bottoms, and roadsides	High

**Table 3-25. Special Status Plants with Moderate to High Potential to Occur within the Special Status Plant Analysis Area (continued)**

<b>Common Name Scientific Name</b>	<b>Status</b>	<b>General Habitat Requirements</b>	<b>Potential</b>
Watson spinecup <i>Oxytheca watsonii</i>	BLM S NVD CE	Dry, open, loose and/or lightly disturbed, often calcareous, sandy soils of washes, roadsides, alluvial fans, and valley bottoms, in the salt scrub zone	High
Western Joshua Tree <i>Yucca brevifolia</i>	BLM S	Flats, gentle slopes, mesas, and bajadas on varying substrates and plant communities	High
White [Merriam's] bearpoppy <i>Arctomecon merriamii</i>	BLM S NVD CE TUSK	Rocky limestone slopes and gravel washes in the northeastern Mojave Desert at elevations between 2,000 and 4,600 feet	High
White-margined beardtongue <i>Penstemon albomarginatus</i>	BLM S NVD CE	Bases of hills and mountains in wind-blown sand dune-like areas, but is also found in deep, loose sand in wash bottoms at elevations between 1,500 to 3,600 feet. Occurs in four distinct populations located in Mojave County, AZ, San Bernardino County, CA, and in Clark and Nye counties, NV. A petition to list this species under the ESA was submitted to the USFWS in March 2023 based on declines in populations attributed in part to habitat loss and degradation from drought, fragmentation of habitat, and harm from off-highway vehicles (Center for Biological Diversity 2023). Surveys conducted for the GLWP identified approximately 686 acres of suitable habitat for this species within the special status plant species analysis area (Silver Sage Eco 2023b).	High

*Table Acronym(s):* AZ – Arizona; BLM – Bureau of Land Management; BLM S – Sensitive Species; CA – California; CS – Covered Species; CE – Critically Endangered Plant; ESA – Endangered Species Act; ESsp – Evaluated Species; Flora – State of Nevada Critically Endangered State Listed Flora; GLWP – Greenlink West Transmission Project; kV – Kilovolt; MSHCP – Clark County Multiple Species Habitat Conservation Plan; NDNH – Nevada Division of Natural Heritage; NV – Nevada; NVD – Nevada State Designation; TUSK – Tule Springs Fossil Beds National Monument Species of Concern; USFWS – United States Fish and Wildlife Service

**Table 3-26. Special Status Terrestrial Wildlife with Moderate to High Potential to Occur within the Special Status Wildlife Analysis Area**

Common Name Scientific Name	Status	General Habitat Requirements	Potential
Amargosa miloderes weevil <i>Miloderes amargosensis</i>	BLM S	Endemic to Big Dune and Lava Dune in the Amargosa Valley	High
Amargosa toad <i>Anaxyrus nelsoni</i>	BLM S NVD PRA	Open, ponded, or flowing water with riparian vegetative cover; adults also require adjacent vegetated uplands for nocturnal foraging. The species is endemic to the Amargosa River within the Oasis Valley. Occupies a limited 10-mile-long range of scattered wetland and nearby upland habitats along the Amargosa River in Oasis Valley near Beatty, NV (USFWS 1996). Near the GLWP, this species has been recorded along the US 95, Fleur de Lis/Boiling Pot Road, Beatty Wash Road, and the unnamed road accessing Flurospar Canyon, which are existing access roads proposed for the GLWP (NDNH 2021b). Construction Yard 7 is located near the Amargosa River south of Beatty, though the construction yard does not contain suitable habitat for the species and the nearest suitable habitat for this species where the Amargosa River is bisected by US 95 is approximately 600 feet from this construction yard.	High
Amargosa Valley darkling beetle <i>Lariversius</i> sp.	BLM S	Endemic to Big Dune and Lava Dune in Amargosa Valley	Moderate
American water shrew <i>Sorex palustris</i>	BLM S	Small cold streams with thick overhanging riparian growth; also found near lakes, ponds, marshes, bogs, and other lentic habitats	Moderate
Ash Meadows dune scorpion <i>Parunoctonus arenicola arenicola</i>	BLM S	Endemic to Big Dune and Lava Dune in Amargosa Valley	High
Atomic tarantula <i>Aphonopelma atomicum</i>	BLM S	Endemic to the Amargosa Valley	High
Banded Gila monster <i>Heloderma suspectum cinctum</i>	BLM S NVD PR MSHCP ES TUSK	Desert scrub habitats, semi-desert grassland and (more rarely) woodland communities along mountain foothills, frequently use canyons or adjacent rocky slopes and occasionally open valleys	High
Bighorn sheep (California, Desert, and Rocky Mountain subspecies) <i>Ovis canadensis</i> spp.	BLM S MSHCP WL	Mesic to xeric, alpine to desert grasslands or shrub-steppe in mountains, foothills, or river canyons. Multiple records for the species occur near the GLWP in areas such as the Bare Mountain, Yucca Mountains, Spring Mountains, Wassuk Range, and Virginia Range. Desert bighorn sheep is the only subspecies found within the special status fish and wildlife analysis area. Spatial data provided by NDOW (2024) and Monks and Logan Simpson (2024) identifies desert bighorn sheep records and occupied habitat and 16 separate herds located in 18 mountain ranges within the special status fish and wildlife analysis area. Most of these habitat areas within the analysis area are utilized year-round, three habitat areas provide winter range, and one is identified as limited use (NDOW 2024).	High
Carole's fritillary <i>Argynnis coronis</i> ssp. <i>carolae</i>	BLM S	Pinyon-juniper mixed conifer zones	High

**Table 3-26. Special Status Terrestrial Wildlife with Moderate to High Potential to Occur within the Special Status Wildlife Analysis Area (continued)**

<b>Common Name Scientific Name</b>	<b>Status</b>	<b>General Habitat Requirements</b>	<b>Potential</b>
Common chuckwalla <i>Sauromalus ater</i>	BLM S	Lava flows, hillsides, and outcrops in rocky desert	High
Darkling beetle sp. <i>Eleodes inornata</i>	BLM S	Endemic to forested areas in Carson and Douglas counties	Moderate
Darkling beetle sp. <i>Neobaphion papula</i>	BLM S	Endemic to forested areas in Mineral and Churchill counties	High
Desert horned lizard (northern and southern subspecies) <i>Phrynosoma platyrhinos platyrhinos</i> and <i>P. p. calidiarum</i>	BLM S MSHCP ESp	Open sandy flats, along washes, and at the edge of dunes	High
Desert iguana <i>Dipsosaurus dorsalis</i>	BLM S MSHCP CS	Sparse creosote scrub and salt scrub habitats	High
Early blue butterfly <i>Euphilotes enoptes primavera</i>	BLM S	Known only from the Wassuk Range in Mineral County, within shrubland, chaparral, and desert grassland habitats	High
Giuliani's dune scarab <i>Pseudocotalpa giulianii</i>	BLM S	Endemic to the Big Dune and Lava Dune in Amargosa Valley; occurs in loose sand beneath vegetation in areas surrounding the dunes	Moderate
Glossy snake (desert and Mohave ssp.) <i>Arizona elegans eburnata</i> and <i>A. e. candida</i>	BLM S MSHCP CS	Mojave desert scrub and salt scrub with open sandy areas, scattered brush, and rocky washes	High
Great Basin collared lizard <i>Crotaphytus bicinctores</i>	BLM S MSHCP CS	Wide range of vegetation types from desert scrub and salt scrub, through blackbrush and sagebrush, and into pinyon-juniper woodlands	High
Great Basin small blue butterfly <i>Philotiella speciosa septentrionalis</i>	BLM S	Deserts, sandy washes, chaparral, and woodlands	High
Greater short-horned lizard <i>Phrynosoma hernandesi</i>	BLM S	Semi-arid plains and sagebrush, to open pinyon-juniper forest, and high mountain pine-spruce and spruce-fir forests	High



**Table 3-26. Special Status Terrestrial Wildlife with Moderate to High Potential to Occur within the Special Status Wildlife Analysis Area (continued)**

<b>Common Name Scientific Name</b>	<b>Status</b>	<b>General Habitat Requirements</b>	<b>Potential</b>
Inyo mountains blue butterfly <i>Euphilotes bernardino inyomontana</i>	BLM S MSHCP ES <sub>p</sub>	Montane communities, associated with buckwheat	High
Inyo shrew <i>Sorex tenellus</i>	BLM S MSHCP ES <sub>p</sub>	Rocky montane areas with logs, boulders, or sagebrush scrub, red fir, and Engelmann spruce	Moderate
Large aegialian scarab <i>Aegialia magnifica</i>	BLM S	Endemic to the Big Dune and Lava Dune in Amargosa Valley; occurs in loose sand beneath vegetation in areas surrounding the dunes	Moderate
Las Vegas Fairy Bee <i>Perdita cracens</i>	BLM S MSHCP ES <sub>p</sub>	Found in Lake Mead NRA, Las Vegas Valley, and the Spring Mountains	High
Long-nosed leopard lizard <i>Gambelia wislizenii</i>	BLM S MSHCP CS	Sandy and gravelly desert and semidesert areas with scattered shrubs or other low plants, especially areas with abundant rodent burrows	High
Mercury miloderes weevil <i>Miloderes mercuryensis</i>	BLM S	Endemic to sand dunes in Amargosa Valley	High
Merriam's shrew <i>Sorex merriami</i>	BLM S	Arid grassland habitats, including grasses in sagebrush scrub, pinyon-juniper, mountain mahogany, and mixed woodlands	Moderate
Mojave poppy bee <i>Perdita meconis</i>	BLM S MSHCP ES <sub>p</sub>	Restricted to the habitat of its associated plant species: large-flowered plants of the poppy family <i>Arctomecon</i> spp. and <i>Argemone</i> spp.	High
Monarch butterfly <i>Danaus plexippus plexippus</i>	BLM S ESA C	Widespread throughout Nevada, requires milkweed ( <i>Asclepias</i> spp.) as host plants for larvae	High
Mono checkerspot <i>Euphydryas editha monoensis</i>	BLM S	Wet meadows and pine forests along east slope of the Sierra Mountains	Moderate
Nevada admiral <i>Limenitis weidemeyerii nevadae</i>	BLM S MSHCP CS	Riparian habitats, bristlecone pine, mixed conifer forest, and pinyon-juniper communities	High
Nevada alkali skipperling <i>Pseudocopaeodes eunus flavus</i>	BLM S	Salt grass on alkali flats in central and western Nevada	Moderate
Northern leopard frog <i>Lithobates pipiens</i>	BLM S	Permanent ponds, swamps, marshes, and slow-moving streams throughout forested, open, and urban areas	High
Nye County Army Ant <i>Neivamyrmex nyensis</i>	BLM S	Rocky terrain	High

**Table 3-26. Special Status Terrestrial Wildlife with Moderate to High Potential to Occur within the Special Status Wildlife Analysis Area (continued)**

<b>Common Name Scientific Name</b>	<b>Status</b>	<b>General Habitat Requirements</b>	<b>Potential</b>
Pale kangaroo mouse <i>Microdipodops pallidus</i>	BLM S NVD PM	Fine sands in alkali sink and desert scrub dominated by shadscale or big sagebrush	High
Pallid Sylvinus Hairstreak <i>Satyrium sylvinus megapallidum</i>	BLM S	Associated with <i>Salix exigua</i> , <i>Salix gooddingii</i> , and <i>Salix laevigata</i>	Moderate
Pallid Wood Nymph <i>Cercyonis oetus pallescens</i>	BLM S	Dry-to-moist alkaline flats with salt grass and occasional shrubs	Moderate
Palmer's chipmunk <i>Neotamias palmeri</i>	NVD SM MSHCP CS	Mature coniferous forests; endemic to the Spring Mountains	Moderate
Peavine blue butterfly <i>Euphilotes enoptes aridorum</i>	BLM S	Dry hillsides and flats on host plant <i>Eriogonum elatum</i>	High
Red-tailed blazing star bee <i>Megandrena mentzeliae</i>	BLM S MSHCP ES <sub>p</sub>	Gravelly slopes in creosote and mixed desert scrub	High
Shovel-nosed snake (western and Mohave ssp.) <i>Chionactis occipitalis talpina</i> and <i>C. o. occipitalis</i>	BLM S	Washes, dunes, sandy flats, rocky hillsides in dry deserts with loose sand, and often, sparse vegetation	High
Sidewinder <i>Crotalus cerastes</i>	BLM S MSHCP CS	Wind-blown sands, especially where sand hummocks are topped with vegetation	High
Sin city scorpion <i>Pseudonocionus peccatum</i>	BLM S	Endemic to the Spring Mountains	High
Spring Mountains forestfly <i>Malenka murvoshi</i>	BLM S	Endemic to the Spring Mountains	High
Spring Mountains sagebrush checkerspot <i>Chlosyne acastus robusta</i>	BLM S MSHCP CS	Riparian areas, mixed conifer and pinyon-juniper, and sagebrush habitat	High
Springs Mountains dark blue butterfly (early form) <i>Euphilotes ancilla purpura</i>	BLM S MSHCP CS	Mixed conifer and pinyon-juniper communities near springs, and stream banks	High
Undescribed scorpion <i>Pseudouroctonus</i> spp.	N/A	Sand dunes near the Atwood Preserve	High

**Table 3-26. Special Status Terrestrial Wildlife with Moderate to High Potential to Occur within the Special Status Wildlife Analysis Area (continued)**

<b>Common Name Scientific Name</b>	<b>Status</b>	<b>General Habitat Requirements</b>	<b>Potential</b>
Washoe stonefly <i>Sierracapnia washoe</i>	BLM S	Small mountain creeks or spring brooks isolated within vast dry terrains and short flow reaches	High
Western red-tailed skink <i>Plestiodon [Eumeces] gilberti rubricaudatus</i>	BLM S MSHCP CS	Variety of habitats, but most commonly in rocky areas with vegetative cover near water in pinyon-juniper and riparian zones	High
Western toad <i>Anaxyrus boreas</i>	BLM S	Wide variety of habitats ranging from desert springs to mountain wetlands. Various upland habitats around ponds, lakes, reservoirs, and slow-moving rivers and streams	Moderate
Wild Burro <i>Equus asinus</i>	WFRHBA	Wide variety of habitats including desert scrub, shrublands, and grasslands near available water resources.	High
Wild Horse <i>Equus ferus</i>	WFRHBA	Wide variety of habitats including desert scrub, shrublands, and grasslands near available water resources.	High

*Table Acronym(s)*: BLM – Bureau of Land Management; BLM S – BLM Sensitive Species; C – Candidate; CS – Covered Species; ESA – Endangered Species Act; ESp – Evaluated Species; GLWP – Greenlink West Transmission Project; MSHCP – Clark County Multiple Species Habitat Conservation Plan; NRA – National Recreation Area; NDNH – Nevada Division of Natural Heritage; NDOW – Nevada Department of Wildlife; NV – Nevada; N/A – Not Applicable; NVD – Nevada State Designation; PRA – Protected Amphibian; PM – Protected Mammal; PR – Protected Reptile; SM – Sensitive Mammal; TUSK – Tule Springs Fossil Beds National Monument Species of Concern; WFRHBA – Wild-Free Roaming Horses and Burros Act of 1971; WL – Watch List

**Table 3-27. Special Status Aquatic Species with Moderate to High Potential to Occur within the Special Status Wildlife Analysis Area**

<b>Common Name Scientific Name</b>	<b>Status</b>	<b>General Habitat Requirements</b>	<b>Potential</b>
Mountain whitefish <i>Prosopium williamsoni</i>	BLM S NVD PF	Cool water in large rivers, requires streams with a minimum pool depth of four feet in season of least flow	Moderate
Nye county pyrg <i>Pyrgulopsis licina</i>	BLM S	Freshwater springs and outflows	High
Oasis Valley pyrg <i>Pyrgulopsis micrococcus</i>	BLM S	Springs in Oasis Valley	High
Oasis Valley speckled dace <i>Rhinichthys osculus</i> ssp. 6	BLM S	Flowing water, desert springs, and shallow desert streams	High
Oasis Valley springsnail <i>Pyrgulopsis micrococcus</i>	BLM S	Small springs and stream outflows, especially on stone, travertine, watercress, and plant debris	High
Pahranagat naucorid bug <i>Pelocoris shoshone shoshone</i>	BLM S	Quiet waters under overhanging turf banks	Moderate
Southeast Nevada pyrg <i>Pyrgulopsis turbatrrix</i>	BLM S	Springs in Las Vegas Valley, Indian Springs, Pahump Valley, Amargosa Flat, and Frenchman Flat	High
Western pearlshell <i>Margaritifera falcata</i>	BLM S	Low and high gradient streams, associated with salmonid fish hosts	High

Table Acronym(s): BLM S – BLM Sensitive Species; NVD – Nevada State Designation; PF – Protected Fish

**Table 3-28. Special Status Birds and Bats with Moderate to High Potential to Occur within the Special Status Wildlife Analysis Area**

Common Name Scientific Name	Status	General Habitat Requirements	Potential
Allen's big-eared bat [Allen's lappet-browed bat] <i>Idionycteris phyllotis</i>	BLM S NVD PM	In summer, occupies high elevation pine and oak woodland but also uses a variety of riparian woodland across a wide elevational gradient. In winter, found at lower elevations from creosote bush to pinyon-juniper habitats	High
Bank swallow <i>Riparia riparia</i>	BLM S	Burrows dug near top of steep sand, dirt, or gravel banks	High
Bendire's thrasher <i>Toxostoma bendirei</i>	BLM S BCC MSHCP ES TUSK	Deserts, especially where open areas meet tall vegetation such as cholla, creosote bush, and yucca, and juniper woodland	Moderate
Big brown bat <i>Eptesicus fuscus</i>	BLM S	Variety of habitats including pinyon-juniper, blackbrush, creosote bush, sagebrush, agricultural areas, and urban habitats	High
Black Tern <i>Chlidonias niger</i>	BCC	Widespread distribution, breeding in riparian and wetland areas, typically in sites with mixture of emergent vegetation and open water	High
Black-chinned sparrow <i>Spizella atrogularis</i>	BCC	Chaparral, sagebrush, and arid scrub on gentle hillsides to steep, rocky slopes, or in brushy canyons	High
Black-throated gray warbler <i>Setophaga nigrescens</i>	BLM S	Juniper-pinyon oak scrub on foothills, canyons, and slopes	High
Bobolink <i>Dolichonyx oryzivorus</i>	BCC	Widespread distribution, breeding in tall grass areas, prairie, and agricultural areas	High
Brazilian (Mexican) free-tailed bat <i>Tadarida brasiliensis</i>	BLM S	Low desert to high mountain habitats	High
Brewer's sparrow <i>Spizella breweri</i>	BLM S	Strongly associated with sagebrush, also uses openings in pinyon-juniper woodland and a range of desert scrub habitats consisting mainly of saltbush and creosote during winter	High
Broad-tailed hummingbird <i>Selasphorus platycercus</i>	BLM S BCC (BCR 9)	Open woodlands, pinyon-juniper, and conifer aspen associations	High
Burrowing owl (includes western burrowing owl) <i>Athene cunicularia</i> including <i>A. c. hypugaea</i>	BLM S BCC MSHCP ES	Open habitats with sparse vegetation such as prairie, pasture, desert, or shrub-steppe	High

**Table 3-28. Special Status Birds and Bats with Moderate to High Potential to Occur within the Special Status Wildlife Analysis Area (continued)**

Common Name Scientific Name	Status	General Habitat Requirements	Potential
California leaf-nosed bat <i>Macrotus californicus</i>	BLM S NVD SM MSHCP WL TUSK	Creosote, Mojave scrub, and riparian areas at elevations between 690 to 2,260 feet	High
California myotis <i>Myotis californicus</i>	BLM S	Variety of habitats from desert scrub to forest at elevations between 680 to 6,000 feet	High
Canyon bat <i>Parastrellus hesperus</i>	BLM S	Variety of habitats of blackbrush, creosote, salt scrub, and sagebrush	High
Cassin's finch <i>Carpodacus cassinii</i>	BCC	Open coniferous forest, also uses deciduous woodland, scrub, brushy areas, and partly open areas with scattered trees during migration and wintering	Moderate
Clark's grebe <i>Aechmophorus clarkii</i>	BCC	Marshes, lakes, and bays; less frequently along rivers	High
Common nighthawk <i>Chordeiles minor</i>	BLM S	Shrubland/chaparral, grassland/herbaceous woodland, mountains, plains, and open coniferous forests	High
Costa's hummingbird <i>Calypte costae</i>	BCC	Desert and semi-desert habitat, especially washes, and arid brushy foothills and chaparral	High
Crissal thrasher <i>Toxostoma crissale</i>	BLM S MSHCP ESp	Dense mesquite thickets and brush along desert streams, as well as in sparse brush in open areas and dense chaparral in mountains at elevations below 6,000 feet	High
Evening grosbeak <i>Coccothraustes vespertinus</i>	BCC	Coniferous (primarily spruce and fir) and mixed coniferous-deciduous woodland, second growth, and occasionally parks	Moderate
Ferruginous hawk <i>Buteo regalis</i>	BLM S BCC MSHCP WL	Arid and semi-arid grassland regions	High
Franklin's gull <i>Leucophaeus pipixcan</i>	BCC	Freshwater marshes, shores of inland lakes, and in areas of prairie and steppe	Moderate
Fringed myotis <i>Myotis thysanodes</i>	BLM S NVD PM MSHCP ESp	Wide range of habitats from low-elevation desert scrub to high-elevation coniferous forest at elevations between 1,400 to 7,000 feet	High
Grace's warbler <i>Setophaga graciae</i>	BCC	Open pine forest, pine-oak woodlands, and pine savanna	High

**Table 3-28. Special Status Birds and Bats with Moderate to High Potential to Occur within the Special Status Wildlife Analysis Area (continued)**

<b>Common Name Scientific Name</b>	<b>Status</b>	<b>General Habitat Requirements</b>	<b>Potential</b>
Great Basin willow flycatcher <i>Empidonax traillii adastus</i>	BLM S BCC	Montane and lowland riparian habitat, and occasionally in other inundated areas such as aspen stands or wet meadows	Moderate
Greater western mastiff bat [bonneted] bat <i>Eumops perotis</i>	BLM S NVD SM	Variety of habitats from desert scrub to chaparral to montane coniferous forest	High
Hoary bat <i>Lasiurus cinereus</i>	BLM S	Forested upland habitats, as well as riparian gallery-forest zones and agricultural habitats at elevations between 1,870 to 8,270 feet	High
Lawrence's goldfinch <i>Spinus lawrencei</i>	BCC	Oak woodland, chaparral, riparian woodland, pinyon-juniper woodlands, and weedy areas in arid regions, usually near water resources	High
LeConte's thrasher <i>Toxostoma lecontei</i>	BLM S BCC MSHCP ES TUSK	Desert scrub, particularly creosote bush associations	High
Lesser yellowlegs <i>Tringa flavipes</i>	BCC	Marshes, ponds, wet meadows, lakes, and mudflats	High
Little brown bat [myotis] <i>Myotis lucifugus</i>	BLM S USFWS DR	Utilizes a variety of habitats; requires a nearby water source. Roosts in caves, mines, rock outcrops, hollow trees, and buildings. In Nevada, can be found throughout the state.	High
Loggerhead shrike <i>Lanius ludovicianus</i>	BLM S MSHCP ES	Open country with short vegetation and well-spaced shrubs or low trees, particularly those with spines or thorns	High
Long-billed curlew <i>Numenius americanus</i>	BLM S BCC	Native dry grassland and sagebrush prairie, and sometimes lightly grazed pastures, or rarely, agricultural fields	Moderate
Long-eared myotis <i>Myotis evotis</i>	BLM S MSHCP CS	Mid- to high-elevation coniferous forest at elevations between 2,300 to 10,100 feet	High
Long-eared owl <i>Asio otus</i>	BCC	Deciduous and evergreen forests, orchards, wooded parks, farm woodlots, river woods, desert oases	High
Long-legged myotis <i>Myotis volans</i>	BLM S MSHCP CS	Pinyon-juniper, Joshua tree woodland, and montane coniferous forest; occasionally found in Mojave and salt desert scrub, blackbrush, mountain shrub, and sagebrush at elevations between 3,050 to 11,200 feet	High
Marbled godwit <i>Limosa fedoa</i>	BCC	Marshes, floodplains, ponds, lakes, and agricultural fields	Moderate
Mountain quail <i>Oreortyx pictus</i>	BLM S	Dense brush in wooded foothills and mountains	High

**Table 3-28. Special Status Birds and Bats with Moderate to High Potential to Occur within the Special Status Wildlife Analysis Area (continued)**

<b>Common Name Scientific Name</b>	<b>Status</b>	<b>General Habitat Requirements</b>	<b>Potential</b>
Northern goshawk <i>Accipiter gentilis</i>	BLM S NVD SnB MSHCP WL	Mature and old-growth forests with more than 60 percent closed canopy	High
Olive-sided flycatcher <i>Contopus cooperi</i>	BCC	Mountainous forests, riparian areas, and open habitats with a mixture of woods and clearings	High
Pallid bat <i>Antrozous pallidus</i>	BLM S	Pinyon-juniper, blackbrush, creosote scrub, sagebrush, and salt scrub vegetation	High
Peregrine falcon <i>Falco peregrinus</i>	BLM S NVD EnB BCC MSHCP CS	Variety of open landscapes, such as wetlands, desert scrub, grasslands, and urban areas	High
Phainopepla <i>Phainopepla nitens</i>	BLM S BCC MSHCP CS TUSK	Deserts, riparian woodlands, and chaparral	High
Pinyon jay <i>Gymnorhinus cyanocephalus</i>	BLM S	Pinyon-juniper woodland, sagebrush, scrub oak, and chaparral communities, and sometimes in pine forests. The GLWP includes approximately 31,894 acres of pinyon-juniper vegetation within the analysis area located in the Spring Mountains in Clark County, the Montezuma Range in Esmeralda County, the Wassuk Range in Mineral County, and at the northern end of the GLWP within the Flowery and Virginia ranges in Storey County.	Moderate
Rufous hummingbird <i>Selasphorus rufus</i>	BCC	Coniferous forests, second growth, thickets, and brushy hillsides, with foraging extending into adjacent scrubby areas and meadows with abundant nectar flowers	High
Sage thrasher <i>Oreoscoptes montanus</i>	BLM S BCC	Arid or semi-arid open country with scattered bushes, grasslands, and open pinyon juniper woodlands	High
Sagebrush sparrow <i>Artemisiospica nevadensis</i>	BLM S	Shrub steppe habitat	High
Sandhill crane (greater and lesser) <i>Grus canadensis canadensis</i> and <i>G. c. tabida</i>	BLM S	Open wetland habitats surrounded by shrubs or trees; breeds in marshes, bogs, wet meadows, prairies, burned-over aspen stands, and other wetland habitats	High
Scott's oriole <i>Icterus parisorum</i>	BLM S BBC (BCR 33)	Arid foothills, deserts, and semi-arid plains in pinyon-juniper and arid oak scrub	High
Silver-haired bat <i>Lasiorycteris noctivagans</i>	BLM S MSHCP CS	Primarily mature forests and riparian corridors	High



**Table 3-28. Special Status Birds and Bats with Moderate to High Potential to Occur within the Special Status Wildlife Analysis Area (continued)**

Common Name Scientific Name	Status	General Habitat Requirements	Potential
Spotted bat <i>Euderma maculatum</i>	BLM S NVD TM MSHCP WL	Primarily rocky cliffs, although widely distributed in desert scrub, woodlands, and riparian habitats at elevations between 1,770 to 7,000 feet	High
Swainson's hawk <i>Buteo swainsoni</i>	BLM S	Open habitats for foraging, including as hay and alfalfa fields, pastures, grain crops, row crops, and grasslands	High
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	BLM S NVD SM TUSK	Low desert to high mountains, strongly correlated with the availability of caves and abandoned mines	High
Verdin <i>Auriparus flaciveps</i>	BLM S BBC (BCR 33)	Arid desert scrub and chaparral habitats	High
Virginia's warbler <i>Leiothlypis virginiae</i>	BLM S BBC (BCR 9)	Ravines and rocky slopes, dense scrub oak, mountain mahogany, and cottonwoods or willows near mountain streams	High
Western red bat <i>Lasiurus blossevillii</i>	BLM S NVD SM	Wooded habitats, including mesquite bosque and cottonwood/willow riparian areas at elevations between 1,380 to 6,600 feet	High
Western small-footed myotis <i>Myotis cillolabrum</i>	BLM S	Desert scrub, grasslands, sagebrush steppe, blackbrush, greasewood, pinyon-juniper woodlands, pine-fir forests, agriculture fields, and urban areas at elevations between 1,600 to 9,000 feet	High
Willet <i>Tringa semipalmata</i>	BCC	Marshes, lake margins, sandy or rocky shores, and, less frequently, open grasslands	Moderate
Yellow bat <i>Lasiurus xanthinus</i>	TUSK	Riparian woodlands in arid regions, pinyon-juniper woodlands, and urban/suburban areas	High
Yuma myotis <i>Myotis yumanensis</i>	BLM S MSHCP WL	Sagebrush, salt scrub, agricultural fields, playas, and riparian corridors at elevations between 1,500 to 11,000 feet	High

*Table Acronym(s)*: BCC – US Fish and Wildlife Birds of Conservation Concern; BCR – Bird Conservation Region; BLM – Bureau of Land Management; BLM S – BLM Sensitive Species; CS – Covered Species; ESA – Endangered Species Act; EnB – Endangered Bird; ESsp – Evaluated Species; GLWP – Greenlink West Transmission Project; MSHCP – Multiple Species Habitat Conservation Plan; NVD – Nevada State Designation; PM – Protected Mammal; PT – Proposed Threatened; SnB – Sensitive Bird; SM – Sensitive Mammal; T – Threatened; TM – Threatened Mammal; TUSK – Tule Springs Fossil Beds National Monument Species of Concern; USFWS DR – US Fish and Wildlife Service Discretionary Status Review; WL – Watch List

The Mount Grant IBA is located on private land and lands administered by the Hawthorne Army Depot and the BLM. This IBA supports very high-quality habitat for a high diversity of upland and riparian bird species (National Audubon Society 2008a). The Carson River Delta IBA occurs primarily on private and US Bureau of Reclamation lands, small portions occur on the Fort Churchill Station Historic Park and BLM-administered land. This IBA was recognized because it contains high-quality cottonwood-willow riparian forest, a habitat-type that has become rare in northwestern Nevada (National Audubon Society 2013). The Walker Lake IBA occurs at the inland terminus of the Walker River and supports more than 10,000 water birds (National Audubon Society 2013). The Mason Valley WMA is another area of special importance to species protected under the MBTA. This WMA is managed to benefit waterfowl and other wildlife species; over 200 species of birds have been reported from this location (eBird 2023).

### **3.3.4 Environmental Consequences**

#### **3.3.4.1 Direct and Indirect Impacts from No Action Alternative**

It is anticipated that under the No Action Alternative, the current uses and trends for the resources would continue to occur. There would be no impacts to special status species attributed to the construction, O&M, and decommissioning of the GLWP under the No Action Alternative.

#### **3.3.4.2 Direct and Indirect Impacts Common to All Action Alternatives**

The construction, O&M, and decommissioning of the GLWP may impact special status species through habitat removal, increased noise and human presence, nighttime lighting, deposition of dust and sedimentation, crushing by or collisions with vehicles and personnel, and collisions with transmission lines. Many of these disturbances would also contribute to habitat fragmentation for some special status species. The following indicators were considered when analyzing impacts to special status species:

- Locations of known populations or areas identified as occupied habitat by agencies such as NDOW and NDNH.
- Acres of wildlife habitat (vegetation communities) affected by the various stages of the GLWP (construction, O&M, decommissioning); relative extent of surrounding areas subjected to disturbance (e.g., increased noise, light).
- GLWP disturbance to high-value habitats for special status species. High-value habitats support a large number of species as compared to other habitats or support species with limited geographic ranges (e.g., areas occupied by species endemic to a single mountain range or spring).

### **Special Status Plant Species**

#### **Construction**

For the Proposed Action, EMMs (Appendix C. EMMs BIO-1, BIO-6, BIO-8, BIO-21, BIO-23, BIO-38, BIO-39, BIO-43, and BIO-47) would be implemented to minimize and avoid the potential for disturbance-related impacts to special status plant species. These measures include, but are not limited to, special status plant surveys prior to ground-disturbing activities; plant and topsoil salvaging; and avoidance of suitable occupied habitat, where feasible.

## **Operations and Maintenance**

As part of O&M activities, vegetation would be periodically trimmed as needed within the transmission line ROW. To minimize the potential for special status plants to be harmed by trimming, herbicide, or crushed by workers or equipment, EMMs would be implemented (Appendix C. EMMs BIO-1, BIO-6, BIO-8, BIO-21 through BIO-23, and BIO-38 through BIO-44). These measures would include surveys within suitable habitat for special status plants; special status plants protection in place, where feasible; and presence of biological monitors for any new ground disturbance or vegetation maintenance activities.

Special status plants in vegetated portions of the GLWP special status plant species analysis area may be impacted by airborne dust created by equipment operation during regular maintenance activities, unplanned repairs, and along unpaved access roads. Impacts from dust would be below the level of detection because most of the GLWP transmission lines would only need to be accessed on an annual basis and exposure would be localized and short-term in duration.

## **Decommissioning**

Impacts on special status plant species during decommissioning would be similar to those of construction, though to a lesser degree. The EMMs applicable during construction would be implemented during decommissioning activities. After reclamation, previously disturbed areas would become available for colonization by special status plants. If additional ground disturbance is required to complete the reclamation process in special status plant suitable habitat, the area would be surveyed and special status plants found would be protected in place, where feasible.

## **Special Status Terrestrial Wildlife Species**

### **Construction**

Under the Action Alternatives, construction-related activities would impact terrestrial wildlife along the existing and new access roads and within the temporary ROW area. Impacts on special status terrestrial wildlife species would include potential injury or death from the increased number of vehicles traveling on access roads and underground burrow destruction by heavy equipment during construction activities. These impacts would be more severe on reptiles that use access roads and construction areas for thermoregulation, slower-moving species such as amphibians, and burrowing animals. Impacts on terrestrial wildlife would result from habitat loss and degradation caused by vegetation clearing, ground disturbance, and the resulting introduction of invasive and noxious weeds. Construction-related activities from the Action Alternatives would cause impacts to terrestrial wildlife due to increased disturbance along temporary construction areas from noise, human activity, vibration, and night lighting, which would result in behavioral changes in terrestrial wildlife including dispersal from their local home ranges. Increases in dispersal of special status terrestrial wildlife from their home ranges due to localized disturbance from construction and increases in anthropogenic resources (i.e., waste and food items and transported water resources for construction activities) within the construction areas and components would promote localized increases in predator occupancy (e.g., kit foxes [*Vulpes macrotis*], coyotes [*Canis latrans*], ravens, raptors) as a result of the increased presence of prey items and anthropogenic resources. These increases in predator occupancy within and adjacent to the temporary ROW areas would result in increased localized predation specifically to special status terrestrial prey species such as small mammals, insects, amphibians, and reptiles.

Numerous EMMs (Appendix C. EMMs BIO-1 through BIO-9, BIO-11, BIO-14 through BIO-20, BIO-24 through BIO-31, BIO-34 through BIO-37, and BIO-48) would minimize impacts to special status terrestrial wildlife. All temporary construction areas would be restored following GLWP construction; these areas would

become available for use by special status terrestrial wildlife once reclamation is complete. EMMs (Appendix C. EMMs BIO-36, HAZMAT\_WASTE-10, HAZMAT\_WASTE-13, and HAZMAT\_WASTE-21) would minimize changes in predator occupancy near construction areas by reducing wildlife access to anthropogenic resources (e.g., waste management, restricting wildlife access, use of transported water).

**Operations and Maintenance**

Ongoing O&M activities associated with the Action Alternatives would result in effects on special status terrestrial wildlife from mortality or injury from vehicles traveling on access roads, transmission and distribution line inspection, and vegetation maintenance. Impacts on the terrestrial wildlife from O&M activities would occur during annual inspections or for maintenance required under emergency conditions (generally conducted by helicopter, all-terrain vehicle, or line truck) resulting in dispersal of terrestrial wildlife from the local areas.

The transmission lines would result in habitat fragmentation and local increases of avian predators due to perching and nesting on the transmission towers. With the implementation of the Raven Management Plan (Appendix G), raptors and ravens perching and nesting would be mitigated and managed along the transmission lines. Furthermore, various sections along the Action Alternative alignments are collocated to existing transmission lines (Table 3-29). Therefore, sections of the Action Alternative alignments that are collocated are unlikely to substantially add to habitat fragmentation and avian predators to special status terrestrial wildlife compared to what already occurs within the local areas near the existing transmission lines. Impacts on the terrestrial wildlife from O&M activities would result in habitat degradation, specifically through impacts from predators perching and nesting on transmission towers and lines.

**Table 3-29. Action Alternatives Alignments and Collocated Existing Transmission Lines**

Action Alternative <sup>a</sup>	Estimated Miles
Proposed Action	119.8
TUSK Transmission Alternative B	1.5
Losee Transmission Alternative A	2.1
Mason Transmission Alternative A	0.3
Carson River Transmission Alternative A	24.4
Carson River Transmission Alternative C	18.0

*Table Acronym(s):* TUSK – Tule Springs Fossil Beds National Monument

*Table Note(s):* <sup>a</sup>Miles listed for the Proposed Action encompass the entire proposed route. Miles listed for the other Action Alternatives reflect only the comparable segment of the alternative.

**Decommissioning**

Impacts during decommissioning would be similar to impacts during construction, though to a lesser degree. After reclamation of disturbed areas, vegetation would be restored to pre-construction conditions, to the extent feasible. Human activity associated with the Action Alternatives would decrease after decommissioning and the removal of transmission line facilities.

**Special Status Aquatic Species**

**Construction**

Aquatic wildlife is likely to be impacted by the construction activities that result in habitat degradation. No construction activities would occur within surface water resources. Vehicles, equipment, and workers would remain on access roads, transmission towers would be constructed away from surface water resources, and the transmission and distribution line wires would span over the riparian habitats and open water.

To reduce impacts of habitat degradation on special status aquatic species, EMMs (Appendix C. EMMs BIO-35, CON-9, CON-13, HYDRO\_WQ-8, HYDRO\_WQ-22, and OPS-12) would implement stormwater management measures and minimize, where feasible, vehicle travel and construction-related activities within 300 feet from wetlands and waterways. If construction activities resulting in ground disturbance within the 300-foot buffer cannot be avoided, coordination with the appropriate land management agency would be required before ground disturbance can commence. In addition, if construction activities would require ground disturbance within the wetlands and waterways determined to be Waters of the US (WUS), a Section 404 Clean Water Act (CWA) permit issued by the US Army Corps of Engineers (USACE) would be obtained (refer to Section 3.14 Water Resources). Impacts to wetland/riparian vegetation would be avoided or minimized to the extent feasible.

#### **Operations and Maintenance**

Effects on special status aquatic species from ongoing O&M of the Action Alternatives are not anticipated because there would be no O&M activities occurring directly within occupied or suitable habitat for special status aquatic species. Maintenance of the permanent ROW area to clear incompatible vegetation from interfering with the transmission lines would be conducted by trimming and removing riparian vegetation along the crossings of the Carson and Walker rivers. The eventual growth of compatible vegetation in treated areas would moderate water temperatures, buffer the input of sediment and herbicides from runoff, and promote stability along riverbanks which would reduce impacts to special status aquatic species. Additional impacts from O&M activities would be similar to those for construction, such as soil disturbance from transmission facility inspection and maintenance and vegetation maintenance that would cause sedimentation into rivers and other surface water resources. These activities are anticipated to be infrequent and would result in undetectable impacts on special status aquatic species and their habitat.

#### **Decommissioning**

Impacts during decommissioning would be similar to those during construction, though to a lesser degree. After reclamation of disturbed areas, vegetation would be restored to pre-construction conditions, to the extent feasible.

### **Special Status Birds and Bats**

#### **Construction**

Generally, riparian vegetation is of high value to special status birds and bats. Birds and bats would be subject to injury or death from vehicular collisions during construction. Areas of suitable habitat within construction areas not currently occupied by special status birds and bats would be unavailable for colonization for the duration of construction activities. Areas restored following construction would become available for use by special status birds and bats once reclamation is complete. Impacts to bird and bat species that are less tolerant of the disturbance associated with noise, nighttime lighting, and human activity may extend further than the actual disturbance footprint and potentially to lands outside of the temporary ROW area. These less tolerant species may experience physiological and behavioral changes, including avoidance of affected areas for the duration of construction. To reduce the impacts to riparian and other high value habitats, EMMs (Appendix C. EMMs BIO-35, CON-9, CON-13, HYDRO\_WQ-8, HYDRO\_WQ-22, and OPS-12) would be implemented.

#### **Operations and Maintenance**

The presence of overhead transmission and distribution lines and structures would impact predatory birds by creating new foraging opportunities for species that hunt from perches. Transmission line structures

may also be utilized for nesting, generally by raptors and ravens. Prey species may experience increased mortality due to increased perching opportunities provided by the transmission line structures for avian predators. With the implementation of the Raven Management Plan (Appendix G) and the Bird and Bat Conservation Strategy (BBCS) (Appendix H), avian predator occupancy, especially targeted toward ravens, would be reduced by installing perching deterrents on transmission towers and active removal of nests, when possible.

The Action Alternatives could also cause special status birds and bats mortality from collisions with and electrocution by electrical lines. Transmission lines, distribution lines, and other GLWP components would be designed to minimize collisions and electrocutions (e.g., by constructing power lines to APLIC standards). Flight diverters or high-visibility marking devices would be used to reduce the potential for collision with the lines (refer to bird and bat avoidance and minimization measures in Appendix H). Other impacts to special status birds and bats from the Action Alternatives during O&M would be similar to those experienced during construction, though more infrequent, including mortality or injury due to crushing by or collisions with vehicles and impacts associated with increased disturbances such as noise and human presence.

#### **Decommissioning**

Impacts from the Action Alternatives on special status birds and bats during decommissioning would be similar to construction, though to a lesser degree, assuming there would be resident bird acclimation to the disturbances associated with O&M. During decommissioning, previously disturbed areas would become available for utilization by special status birds and bats following reclamation.

### **3.3.4.3 Direct and Indirect Impacts from Proposed Action**

#### **Special Status Plants**

##### **Construction**

Implementation of the Proposed Action would impact 59 special status plants that have a moderate or high potential to occur within the special status plant analysis area. Ground-disturbing activities that remove vegetation have the potential to impact special status plants as noted in the impacts common to all Action Alternatives. Special status plants outside vegetation removal areas may be crushed by construction equipment or personnel. Known populations or habitat areas identified by NDNH (2021b, 2023) for 16 special status plants occur within the footprint of one or more GLWP component (Table 3-30). There would be impacts within the permanent and temporary ROW areas where habitat for special status plants would be removed. All temporary areas of disturbance would be restored following construction. Once reclamation is complete, these areas would become available for special status plant colonization. Special status plants in portions of the temporary ROW area that are not subject to ground disturbance may be impacted by airborne dust from adjacent ground-disturbing activities and equipment operation within the construction area and along unpaved access roads. Impacts to plant pollinator species caused by vegetation clearing and other construction-related disturbances may decrease pollination of special status plants outside ground disturbance areas, which may in turn reduce the species' ability to reproduce and colonize new areas.

The Proposed Action would result in impacts on 59 special status plants species that would range from undetectable to impacts only on individual plants. These impacts would result from localized habitat degradation and the potential for individual plants to be removed or destroyed. Implementation of EMMs (Appendix C. EMMs BIO-1, BIO-6, BIO-8, BIO-21 through BIO-23, BIO-38 through BIO-44, and BIO-47) and the Integrated Weed Management Plan (COM Plan pending, NV Energy n.d.) would minimize impacts to

special status plants. Churchill Narrows buckwheat, Tiehm’s peppergrass and Las Vegas bearpoppy may be particularly vulnerable to habitat loss because they occupy a limited range. White-margined beardtongue is also considered to be vulnerable and was petitioned for listing under the ESA in March 2023. Impacts to these four species are described in detail in Table 3-30.

**Table 3-30. Impacts from Proposed Action on Known Special Status Plant Populations or Habitat Areas**

<b>Species Name</b>	<b>Component and Relative Location</b>
Black woollypod <i>Astragalus funereus</i>	Construction Yard 7 near Beatty
Churchill Narrows buckwheat <i>Eriogonum diatomaceum</i>	Transmission Lines, access roads, P76 Fly Yard near Churchill Narrows
Cima milkvetch <i>Astragalus cimae</i> var. <i>Cimae</i>	Transmission Lines; State Route 2C Access Roads Requiring Improvements northwest of Walker Lake
Clokey buckwheat <i>Eriogonum heermannii</i> var. <i>clokeyi</i>	Amplifier Site 1 Distribution Lines; Transmission Lines near Indian Springs and Mercury; Spotted Range Distribution Lines; Spotted Range Microwave Site; Unnamed Access Roads Requiring Improvement near Indian Springs and Mercury
Mojave fishhook cactus <i>Sclerocactus polyancistrus</i>	Sawtooth Microwave Site; US 95 and US 374 Existing Access Roads; and Material Yard 7 near Beatty
Lahontan Basin buckwheat <i>Eriogonum rubricaula</i>	Unnamed Access Roads Requiring Improvement near Yerington
Las Vegas bearpoppy <i>Arctomecon californica</i>	Decatur Boulevard; Unnamed Access Roads Requiring Improvements near North Las Vegas; Temporary ROW within TUSK; Transmission Lines and Access Roads Requiring Improvements adjacent to TUSK
Nevada suncup <i>Camissonia nevadensis</i>	Transmission Lines near Carson River Crossing; New Roads and Unnamed Access Roads Requiring improvement near Carson River Crossing; Unnamed Access Roads Requiring improvement near Yerington
Nye milkvetch <i>Astragalus nyensis</i>	Transmission Line near Indian Springs
Oryctes <i>Oryctes nevadensis</i>	Schulz Road Access Road Requiring Improvements; Unnamed Access Roads Requiring Improvement near Thorne
Sand cholla <i>Grusonia pulchella</i>	Transmission Lines; Unnamed Access Roads Requiring Improvement; Construction Yard 4 – Hawthorne
Sodaville milkvetch <i>Astragalus lentiginosus</i> var. <i>Sesquimetalis</i>	Rhodes Salt Marsh Road Access Road Requiring Improvements near Mina
Tiehm’s peppergrass <i>Stroganowia tiehmii</i>	Transmission Lines near Carson River Crossing
Tonopah milkvetch <i>Astragalus pseudiodanthus</i>	New Roads near Coaldale Junction
White (Merriam’s) bearpoppy <i>Arctomecon merriamii</i>	Amplifier Site 1; Amplifier Site 1 Distribution Lines; Transmission Lines near Mercury; Spotted Range Distribution Lines; Spotted Range Microwave Site; Unnamed Access Roads Requiring Improvement near Indian Springs
White-margined beardtongue <i>Penstemon albomarginatus</i>	Transmission Lines near Mercury

*Table Acronym(s)*: ROW – Right of Way; TUSK – Tule Springs Fossil Beds National Monument

*Table Source(s)*: Known populations were provided by the NDNH (2021b) species occurrence datasets, BLM (2012a), and BLM (2011), and may not include all special status plant populations that occur within the GLWP analysis area

### **Churchill Narrows Buckwheat**

The Proposed Action would include approximately 4.0 acres of occupied habitat for Churchill Narrows buckwheat within the temporary ROW area and approximately 1.4 acres of occupied habitat within the permanent ROW area as identified during surveys conducted in 2011 (BLM 2012a). Additionally, the

footprint of Fly Yard P76 would occur within occupied habitat for the Churchill Narrows buckwheat. Maps showing the location of the Proposed Action components, including fly yard locations, can be found in Appendix B NV Energy Preliminary Plan of Development, Attachment: B Project Maps (NV Energy 2023). Construction of the Proposed Action would result in the destruction of individual Churchill Narrows buckwheat plants and would temporarily disturb approximately 4.0 acres of occupied habitat. This habitat loss would represent approximately 22 percent (17.9 acres) of the entire area occupied by the species in 2011 (USFWS 2014b). As stated above, a 300-foot buffer would be implemented for construction-related activities around special status plant populations, where feasible (Appendix C. EMM BIO-38). However, the Proposed Action would cross multiple areas of Churchill Narrows buckwheat occupied habitat and avoidance of individual plants or local plant populations may not be possible in all areas. The implementation of EMMs (Appendix C. BIO-38) and the Integrated Weed Management Plan (COM Plan pending, NV Energy n.d.) would minimize impacts, as practicable. However, because the Proposed Action would include a large percentage of the total occupied habitat for this species range-wide, it may result in a trend toward federal listing or loss of viability of Churchill Narrows buckwheat.

The Churchill Narrows buckwheat is known to shift its distribution in response to external conditions, and areas containing unoccupied suitable habitat are important to the long-term persistence of the species and could become occupied in the future (USFWS 2014b). The Proposed Action would include approximately 83.3 acres of suitable habitat within temporary ROW area (0.9 acres of access road and 82.4 acres of transmission line temporary ROWs) and approximately 25.1 acres of suitable habitat within permanent ROW area (0.1 acres of access road and 25.0 acres of transmission line permanent ROWs). Approximately 58.2 acres of suitable habitat within the Proposed Action temporary ROW area would be restored following construction (Appendix C. EMM BIO-16).

#### ***Tiehm's Peppergrass***

Two previously recorded populations of Tiehm's peppergrass are located along the 345-kV Fort Churchill to Comstock #1 transmission line (NDNH 2021b). One is located within the temporary ROW area and the permanent ROW area near this population would occur within habitat that is likely to be suitable for Tiehm's peppergrass based on the USGS SWReGAP vegetation community data (Lowry Jr. et al. 2005). The second population of Tiehm's peppergrass is located outside the temporary and permanent ROW areas; vegetation communities associated with Tiehm's peppergrass do not extend into the GLWP footprint adjacent to this population (Lowry Jr. et al. 2005). A 300-foot buffer would be implemented for construction-related activities around special status plant populations, where feasible (Appendix C. EMM BIO-38). However, the Proposed Action would cross suitable and occupied habitat for Tiehm's peppergrass and avoidance of individual plants or local plant populations may not be possible in all areas. The implementation of EMMs (Appendix C. EMM BIO-38) and the Integrated Weed Management Plan (COM Plan pending, NV Energy n.d.) would minimize impacts, as practicable, but because the Proposed Action includes a population of Tiehm's peppergrass and the species occupies a limited range, the Proposed Action may result in a trend toward federal listing or loss of viability of Tiehm's peppergrass.

#### ***Las Vegas Bearpoppy***

According to habitat models for Las Vegas bearpoppy (Hamilton and Kokos 2011), of the 436,121 acres of suitable habitat identified for the plant in the western Mojave Desert of Clark County, approximately 168.5 acres of Las Vegas bearpoppy suitable habitat would occur within the Proposed Action temporary ROW area and approximately 57.4 acres of suitable habitat would occur within the permanent ROW area located near Las Vegas. No populations of the species were found during the 2023 presence/absence



surveys within approximately 277 acres of the Proposed Action temporary ROW area (DeMasters et al. 2023).

Prior to ground disturbance, a pre-construction survey would be conducted during the blooming season for the Las Vegas bearpoppy to identify if any species have propagated within the Proposed Action temporary ROW area. Components, such as structure pads, would be micro-sited outside of suitable habitat for this plant, especially around known populations, where feasible. If individuals/populations of the species are identified, a 300-foot buffer would be identified and construction-related activities would be minimized within the buffered area, where feasible (Appendix C. EMMs BIO-32 and BIO-38). If GLWP components cannot be sited outside of suitable habitat and impacts to this species cannot be avoided, the Proponent would coordinate with the appropriate land management agency to determine a course of action to minimize direct and indirect impacts to this plant (Appendix C. EMM BIO-33). Some individual plants may be impacted during construction. However, the suitable habitat within the Proposed Action temporary ROW area would represent only a small portion (0.04 percent) of the total suitable habitat in Clark County. With the implementation of EMMs (Appendix C. EMMs BIO-2, BIO-8, BIO-21, BIO-32, BIO-33, and BIO-38) and the Integrated Weed Management Plan (COM Plan pending, NV Energy n.d.), the Proposed Action is not anticipated to result in a trend toward federal listing for the Las Vegas bearpoppy.

#### ***White-Margined Beardtongue***

The Proposed Action would occur within portions of the Nye County population of white-margined beardtongue located near US 95 between the NNSS and the Ash Meadows National Wildlife Refuge (Ash Meadows NWR). Surveys conducted in 2023 identified approximately 331.3 acres and approximately 104.2 acres of suitable habitat within the temporary and permanent ROW areas, respectively (Silver Sage Eco 2023b). Pre-construction surveys for the white-margined beardtongue would be conducted to identify individuals that may occur within the temporary ROW area. Components, such as structure pads, would be micro-sited outside of suitable habitat for this plant, especially around known populations, where feasible. If individuals/populations of the species are identified, a 300-foot buffer would be identified and construction-related activities would be minimized within the buffered area, where feasible (Appendix C. EMMs BIO-32 and BIO-38). If avoidance of plants is not possible, some individual plants may be directly impacted during construction of the GLWP.

Impacts to the white-margined beardtongue from construction of the Proposed Action would include habitat loss and degradation of approximately 331.3 acres of white-margined beardtongue suitable habitat within the temporary ROW area. Impacts from the construction of the Proposed Action would result in localized impacts to only a small portion of the Nye County population of white-margined beardtongue. Per EMM BIO-38, if the Proposed Action cannot avoid individuals, then coordination with the appropriate land management agency and additional measures such as salvaging individuals would be implemented. In addition to pre-construction surveys, EMMs (Appendix C. EMMs BIO-6, BIO-22, BIO-23, and BIO-38 through BIO-44) would require minimization of impacts to the species, measures to manage both dust and invasive species, and reclamation of habitats following construction. The construction of the Proposed Action may result in local impacts to the individual but are not anticipated to result in a trend toward federal listing for the white-margined beardtongue.

#### **Operations and Maintenance and Decommissioning**

The O&M and decommissioning-related special status plant species impacts would be the same as those discussed in the impacts common to all Action Alternatives above.

### **Additional Measures to Avoid and/or Minimize Impacts**

There are no additional measures recommended to avoid and/or minimize impacts from the Proposed Action to special status plants with the implementation of the EMMs (Appendix C).

### **Special Status Terrestrial Wildlife**

The Proposed Action would impact 76 special status terrestrial wildlife species that have a moderate or high potential to occur within the special status fish and wildlife analysis area. Multiple EMMs (Appendix C. EMMs BIO-1 through BIO-9, BIO-11, BIO-14 through BIO-20, BIO-24 through BIO-31, and BIO-34 through BIO-37) would be implemented to minimize impacts to special status terrestrial wildlife species. With the implementation of these EMMs, the Proposed Action is not likely to result in a trend toward federal listing or loss of viability to any of these 76 special status terrestrial wildlife species. Of the 76 special status terrestrial wildlife species, impacts to the Amargosa toad, an undescribed scorpion species, desert bighorn sheep, monarch butterfly, Amargosa miloderes weevil, Amargosa Valley darkling beetle, Ash Meadows dune scorpion, Giuliani's dune scarab, and Large aegialian scarab from the Proposed Action may be notable as a result of limited species ranges or isolated population occurrences.

### **Construction**

The Amargosa toad may be susceptible to construction-related disturbance because the species occupies a limited 10-mile-long range (USFWS 1996). Construction-related activities along the access roads for the Proposed Action (US 95, Fleur de Lis/Boiling Pot Road, Beatty Wash Road, and the unnamed road accessing Flurospar Canyon) where this species has been previously recorded (NDNH 2021b) may result in impacts to the Amargosa toad due to mortality by crushing from vehicles and habitat loss and degradation. Construction of new access roads and improvement of existing access roads may involve ground disturbance within ephemeral drainages in the Oasis Valley. Increased sedimentation within isolated water bodies has been found to reduce survivorship for local tadpole populations (Wood and Richardson 2009). Sedimentation from construction and vehicle and equipment movement along access roads near the Amargosa River may impact Amargosa toad tadpoles. Impacts may be more severe during, and immediately after, precipitation events and during the Amargosa toad's breeding season. Specific EMMs, in addition to other EMMs to minimize potential effects during construction, for the Amargosa toad would require construction activities to halt and be delayed for 24-hours following rain events, and to avoid construction activities during the breeding season (Appendix C. EMM BIO-26). With the implementation of these EMMs (Appendix C), impacts to individual Amargosa toads may occur, but are not anticipated to result in population-level impacts.

Since the publication of the Draft EIS/RMPA, the BLM identified that the Proposed Action occurs near a previously undescribed scorpion species (*Paruroctonus* spp.) known only to occur within an approximately 550-acre area of dune habitat within the Atwood Preserve (Lange 2023). Under the Proposed Action, approximately 71.6 acres and approximately 23.8 acres of temporary and permanent ROW, respectively, would occur within the areas delineated as suitable habitat for this species. This would amount to approximately 13 percent and approximately 4 percent, respectively, of the approximately 550 acres of suitable habitat for the scorpion species. To minimize the impact the Proposed Action would have on the scorpion species habitat, EMM BIO-48 (Appendix C) would be implemented to avoid/minimize ground disturbance, where feasible, within the identified suitable sand dune habitat for the undescribed scorpion species.

Desert bighorn sheep may be susceptible to disturbance as the subspecies occurs in isolated populations among mountain ranges throughout southern Nevada. Occupied bighorn sheep habitat generally occurs

within the mountain ranges located on either side of the transmission line alignment, while the temporary and permanent ROW areas are primarily located outside occupied habitat. The Proposed Action temporary ROW area would include approximately 7,411 acres within nine desert bighorn sheep movement corridors (NDOW 2024). Bighorn sheep movement from one portion of a movement corridor to another may be restricted for the duration of construction within and adjacent to the movement corridors. Additionally, the Proposed Action temporary ROW area would include approximately 3,586.2 acres of occupied bighorn sheep habitat that is used year-round across nine bighorn sheep herd areas (NDOW 2024). Construction-related activities would result in behavioral changes from disturbances such as helicopter use, blasting, vibration, and noise. These impacts would be most pronounced during the sheep mating and lambing seasons, as disturbance could lead to the loss of reproductive opportunities or lamb mortality. To minimize the impacts to desert bighorn sheep, EMMs BIO-27 and BIO-28 (Appendix C) would be implemented specifically to prohibit the use of helicopters within active lambing areas and to restrict construction activities to occur within bighorn sheep winter range.

The monarch butterfly may be susceptible to project disturbance because this species is limited to specific larval host plants (i.e., milkweed [*Asclepias spp.*]) and is in population decline throughout the US (USFWS 2020b). The Proposed Action would occur within the range of the western migratory population (WAFWA 2019). The monarch butterfly and its larval host plants are known to occur throughout the Proposed Action temporary ROW area, specifically within areas that contain milkweed. In Nevada, Milkweed typically requires a water source and milkweed habitat is most prevalent along the Proposed Action around Las Vegas along irrigated fields, canals, parks, and ponds; in the Oasis Valley along the Amargosa River and nearby springs; at Walker Lake; and along the Amargosa, Walker, and Carson rivers (WMMM 2022). Under the Proposed Action, construction-related activities would result in habitat degradation and reduction of milkweed as a result of vegetation crushing and removal. These impacts would occur within the temporary ROW area, primarily at the individual level. Specific EMMs, in addition to other EMMs to minimize potential effects during construction, would be implemented to minimize the impacts to the monarch butterfly to restore or protect in place milkweed patches for the species (Appendix C. EMMs BIO-29 and BIO-30). Impacts to the monarch butterfly and its larval host would be impacts to the individual but not anticipated to result in population-level impacts.

### **Operations and Maintenance**

Five special status terrestrial wildlife species (Amargosa miloderes weevil, Amargosa Valley darkling beetle, Ash Meadows dune scorpion, Giuliani's dune scarab, and Large aegialian scarab) are only known to occur at two locations: Big Dune and Lava Dune in the Amargosa Valley (USFWS 2012). As described in Section 3.9 Earth Resources, the lattice structures, structure foundations, access roads, and the AS-2 (Proposed Action) may have an impact on sand transport and deposition to Lava Dune. Lattice structures and access roads near the dune are anticipated to allow winds to essentially pass through the structure and over the at-grade roads, minimizing the impact on sand transport from the structures. However, because of the height and location of the AS-2 (Proposed Action) and to a lesser extent, the aboveground structure foundations, the Proposed Action may intermittently interrupt sand transport and may alter the sand's natural deposition rate and pattern to Lava Dune. Because Lava Dune is one of only two locations where these five species are known to occur, the Proposed Action may alter a substantial portion of the habitat available for these species, potentially resulting in population-level effects. Therefore, the Proposed Action may result in a trend toward federal listing or loss of viability of Amargosa miloderes weevil, Amargosa Valley darkling beetle, Ash Meadows dune scorpion, Giuliani's dune scarab, and Large aegialian scarab due to impacts on sand transport and deposition to Lava Dune.

## **Decommissioning**

Impacts from the Proposed Action during decommissioning activities would be the same as those discussed in the impacts common to all Action Alternatives above.

## **Additional Measures to Avoid and/or Minimize Impacts**

There are no additional measures recommended to avoid and/or minimize impacts from the Proposed Action to special status terrestrial species with the implementation of the EMMs (Appendix C).

## **Special Status Aquatic Species**

### **Construction**

Construction of the Proposed Action would result in impacts to eight special status aquatic species that have a moderate or high potential to occur within the special status wildlife analysis area. Vehicles, equipment, and workers would remain on access roads, transmission towers would be constructed on dry land, and the transmission and distribution line wires would span over the riparian habitats and open water. No construction activities would occur within surface water resources. Construction of the Proposed Action would result in impacts on special status aquatic species from habitat degradation as a result of construction within ephemeral drainages; removal of vegetation; sedimentation; and stormwater runoff into the Amargosa, Walker, and Carson rivers.

Construction of new and existing access roads requiring maintenance would result in approximately 15.3 acres of disturbance to ephemeral drainages within the temporary ROW area. These ephemeral drainages are unlikely to support habitat for special status aquatic species, although, impacts to these ephemeral drainages may result in impacts if downstream suitable habitat is present. Vegetation removal within the temporary ROW area along the Walker and Carson rivers may reduce shade, forage, and cover for aquatic wildlife species. A total of approximately 87.3 acres of temporary ROW would intersect within riparian vegetation for both the Walker River (approximately 33.8 acres) and Carson River (approximately 53.5 acres) that may be subject to potential removal or trimming to develop a cleared area for the transmission line crossing. The Proposed Action may impact approximately 1,200 feet of streambank (both sides) that supports riparian trees along the Carson River crossing and approximately 2,000 feet of streambank along both Walker River crossings. Impacts of habitat degradation from vegetation removal, sedimentation, and stormwater runoff into desert springs would also affect special status mollusks such as the Oasis Valley pyrg and southeast Nevada pyrg. Habitat degradation would be minimized with the implementation of EMMs (Appendix C. EMMs BIO-35, CON-9, CON-13, HYDRO\_WQ-8, HYDRO\_WQ-22, and OPS-12), which would minimize, to the extent feasible, vehicle travel and construction-related activities within 300 feet from wetlands and waterways.

The Proposed Action would result in impacts, ranging from undetectable to impacts only to the individual, driven predominantly by localized habitat degradation on eight special status aquatic species. The Proposed Action, with the implementation of the EMMs listed above, is not likely to result in a trend toward federal listing or loss of viability of special status aquatic species.

### **Operations and Maintenance and Decommissioning**

Impacts on special status aquatic species from the Proposed Action during O&M and decommissioning activities would be the same as those discussed in the impacts common to all Action Alternatives above. Additionally, approximately 25.3 acres of the Proposed Action permanent ROW area would intersect riparian vegetation for both the Walker River (approximately 12.7 acres) and Carson River (approximately 12.6 acres). This riparian vegetation may be subject to potential removal or trimming as part of vegetation management during O&M to maintain clearance between vegetation and the overhead transmission line conductors at

the river crossings. Similar to construction, impacts of habitat degradation from vegetation management would also affect special status mollusks such as the Oasis Valley pyrg and southeast Nevada pyrg.

**Additional Measures to Avoid and/or Minimize Impacts**

There are no additional measures recommended to avoid and/or minimize impacts from the Proposed Action to special status aquatic species with the implementation of the EMMs (Appendix C).

**Special Status Birds and Bats**

**Construction**

The Proposed Action would impact 41 special status bird species and 20 special status bat species that have a moderate or high potential to occur within the special status wildlife species analysis area. Areas with high-value bird and bat habitat include IBAs; riparian and wetland habitats; and cliff, canyon, and outcrop habitats. Table 3-31 shows acreages of the Proposed Action temporary ROW area within each IBA. Construction of the Proposed Action across riparian areas along the Amargosa, Walker, and Carson rivers; within the Mason Valley WMA; and nearby Perk, Joggles, and Perazzo sloughs would also impact migratory birds and bats utilizing these areas. Approximately 563.5 acres of riparian vegetation, marsh, and playa would occur within the temporary ROW area. Additionally, approximately 119.6 acres of cliff, canyon, and outcrop landcover occur within the temporary ROW area. Birds and bats occurring within these habitats would be subject to injury or death from vehicular collisions; crushing by equipment; destruction of nests and nesting or roosting cavities in vegetation; and disturbance from noise, nighttime lighting, and human presence during construction. Construction of the Proposed Action would also impact special status birds and bats through habitat loss and degradation through vegetation removal; construction of temporary work areas; and construction of transmission and distribution line structures, new access roads, substations, and associated facilities.

To reduce the impacts to riparian and other high value habitats, EMM HYDRO\_WQ-22 (Appendix C), would be implemented, where feasible, by avoiding construction activities within 300 feet of the ordinary high-water mark of rivers, marshes, and playas. Impacts on birds and bats would be minimized through implementation of the BBCS (Appendix H). The BBCS which would require pre-construction surveys to identify active bird nests and bat roosts and measures to protect and minimize disturbance to nesting birds and bats. The BBCS would also have measures to remove unoccupied bird nests from construction areas, design nighttime lighting to minimize impacts to birds and bats, and installation of physical deterrents to discourage birds and bats from in disturbance areas during construction.

**Table 3-31. Proposed Action Estimated Temporary and Permanent ROW Areas to IBAs**

IBA	Acres	Temporary ROW Area (acres)	Temporary ROW Area (percentage)	Permanent ROW Area (acres)	Permanent ROW Area (percentage)
Spring Mountains	18,157.5	0.3	<1	0.3	<1
Oasis Valley	268,776.5	60.1	<1	19.3	<1
Mount Grant	92,975.8	48.7	<1	17.9	<1
Walker Lake	41,519.8	83.8	<1	27.5	<1
Carson River Delta <sup>a</sup>	10,200.2	0.0	0.0	0.0	0.0
<b>Total</b>	<b>421,429.6</b>	<b>193.0</b>	<b>&lt;1</b>	<b>65.0</b>	<b>&lt;1</b>

*Table Acronym(s):* ROW – Right-of-way; IBA – Important Bird Area

*Table Note(s):* <sup>a</sup>A portion of the Carson River Delta IBA falls within the special status wildlife analysis area along two access roads where no ground disturbance would occur.

A petition to list the pinyon jay as endangered or threatened under the ESA was submitted to the USFWS in April 2022, and impacts from the Proposed Action may be notable as a result of declines in pinyon jay populations that are attributed in part to loss and degradation of pinyon-juniper habitat (Defenders of Wildlife 2022). Approximately 1,258.0 acres of pinyon-juniper vegetation would occur within the Proposed Action temporary ROW area. Nearly all of the disturbance to pinyon-juniper vegetation associated with the Proposed Action would occur at the northern end of the GLWP within the Flowery and Virginia ranges. Impacts of construction of the Proposed Action would result in impacts to pinyon jay populations but are not anticipated to result in a trend toward federal listing because pinyon-juniper habitat is relatively widespread within the Virginia and Flowery ranges and construction activities would impact vegetation within a small portion of the overall range of the pinyon jay.

The Proposed Action, with the implementation of the EMMs (Appendix C. BIO-1 through BIO-5, BIO-11, BIO-15, BIO-16, BIO-18, BIO-20, BIO-25, BIO-34, BIO-35, and BIO-45) and the BBCS (Appendix H), would result in impacts ranging from undetectable to impacts only to the individual.

#### **Operations and Maintenance and Decommissioning**

The Proposed Action permanent ROW area would include loss of approximately 65.0 acres of habitat in IBAs for birds and bats; approximately 195.2 acres of riparian vegetation, marsh, and playa; and approximately 243.3 acres of pinyon-juniper vegetation (habitat for pinyon jay). The Proposed Action would also include approximately 24.1 acres of cliff, canyon, and outcrop landcover types. Impacts on birds and bats from O&M and decommissioning activities would be similar to construction impacts, but to a lesser degree. Impacts from O&M would be minimized through implementation of EMMs (Appendix C. EMMs BIO-1 through BIO-5, BIO-11, BIO-15, BIO-16, BIO-18, BIO-20, BIO-25, BIO-34, BIO-35, and BIO-45) and the BBCS (Appendix H).

#### **Additional Measures to Avoid and/or Minimize Impacts**

There are no additional measures recommended to avoid and/or minimize impacts from the Proposed Action to special status bird or bat species with the implementation of the EMMs (Appendix C. BIO-1 through BIO-5, BIO-11, BIO-15, BIO-16, BIO-18, BIO-20, BIO-25, BIO-34, BIO-35, and BIO-45) and the BBCS (Appendix H).

### **3.3.4.4 Direct and Indirect Impacts from Losee Transmission Line Route Group**

#### **Special Status Plants**

##### **Construction, Operations and Maintenance, and Decommissioning**

Three special status plants—Las Vegas bearpoppy, Las Vegas buckwheat, and rosy twotone beardtongue—have been recorded in the vicinity of the Losee Transmission Alternative A and the Proposed Action. No records occur within the temporary or permanent ROW areas for the Losee Transmission Alternative A or the Proposed Action though suitable habitat is present. Compared to the Proposed Action, the Losee Transmission Alternative A would result in slightly less acres of impacts to potential habitat for Las Vegas bearpoppy, Las Vegas buckwheat, and rosy twotone beardtongue. The Proposed Action temporary and permanent ROW areas would include approximately 5.3 more acres and approximately 1.7 more acres, respectively, of suitable habitat for these plants than the Losee Transmission Alternative A. The construction, O&M, and decommissioning of the Losee Transmission Alternative A may impact these special status plant species through habitat removal, crushing by equipment and personnel, and dust deposition. Under the Proposed Action and Losee Transmission Alternative A, surveys for special status plants would be conducted within suitable habitat prior to construction and individual plants detected

during the survey would be protected in place, where feasible. The construction, O&M, and decommissioning of the Losee Transmission Alternative A or the Proposed Action may result in local impacts to individuals but are not anticipated to result in a trend toward federal listing for the special status plant species.

### **Special Status Terrestrial Wildlife**

#### **Construction, Operations and Maintenance, and Decommissioning**

The Losee Transmission Alternative A and the Proposed Action would occur within suitable habitat for a variety of special status terrestrial wildlife, specifically reptiles such as the banded Gila monster, common chuckwalla, and desert horned lizard. The Proposed Action and Losee Transmission Alternative A would have similar impacts on special status terrestrial wildlife from construction, O&M, and decommissioning of the GLWP. The Losee Transmission Alternative A or the Proposed Action may result in local impacts to individuals but are not anticipated to result in a trend toward federal listing for the special status terrestrial wildlife species.

### **Special Status Aquatic Species**

#### **Construction, Operations and Maintenance, and Decommissioning**

The Losee Transmission Alternative A would not occur within suitable or occupied habitat for any special status aquatic species. There would be no impacts to special status aquatic species as a result of the Losee Transmission Alternative A or the Proposed Action.

### **Special Status Birds and Bats**

#### **Construction, Operations and Maintenance, and Decommissioning**

The Losee Transmission Alternative A occurs within suitable habitat for a variety of special status birds and bats such as loggerhead shrike, peregrine falcon, and phainopepla. No cliff or canyon bat-roosting habitat, IBAs, known raptor nests, or pinyon jay habitat occur within the temporary or permanent ROW areas for the Losee Transmission Alternative A or the Proposed Action. Construction of the Losee Transmission Alternative A could impact special status birds and bats through habitat loss due to ground disturbance and/or vegetation crushing. Impacts to special status bird and bat species would be similar as a result of the construction, O&M, and decommissioning of the Losee Transmission Alternative A or the Proposed Action. The construction, O&M, and decommissioning of the Losee Transmission Alternative A or the Proposed Action may result in local impacts to individuals but are not anticipated to result in a trend toward federal listing for the special status bird and bat species.

### **3.3.4.5 Direct and Indirect Impacts from TUSK Transmission Line Route Group**

### **Special Status Plants**

#### **Construction, Operations and Maintenance, and Decommissioning**

Two special status plants, Las Vegas bearpoppy and Las Vegas buckwheat, have been recorded in the vicinity of the TUSK Transmission Alternative B and Proposed Action. Results of the presence/absence surveys for the Las Vegas bearpoppy identified no individuals within the TUSK Transmission Alternative B or the Proposed Action (DeMasters et al. 2023). There are no records of Las Vegas buckwheat within the permanent ROW area for TUSK Transmission Alternative B or the Proposed Action. Under the Proposed Action and Losee Transmission Alternative A, pre-construction surveys would be conducted within suitable habitat prior to construction and individuals detected would be protected in place, where feasible. The

construction, O&M, and decommissioning of the TUSK Transmission Alternative B or the Proposed Action may result in local impacts to individuals but are not anticipated to result in a trend toward federal listing for the special status plant species.

### **Special Status Terrestrial Wildlife**

#### **Construction, Operations and Maintenance, and Decommissioning**

The TUSK Transmission Alternative B and the Proposed Action would occur within suitable habitat for a variety of special status terrestrial wildlife. Both the TUSK Transmission Alternative B and the Proposed Action would be located within a portion of a seasonal movement corridor for bighorn sheep along the La Madre Ridge in the Las Vegas Range (both TUSK Transmission Alternative B and the Proposed Action would include approximately 115.6 acres of bighorn sheep movement corridor within temporary ROW area and approximately 37.1 acres within permanent ROW area). However, the TUSK Transmission Alternatives would be located immediately adjacent to a highly developed area of North Las Vegas and construction of the TUSK Transmission Alternative B or the Proposed Action would not restrict or impede movement of bighorn sheep. The construction, O&M, and decommissioning of the TUSK Transmission Alternative B or the Proposed Action may result in local impacts to individuals but are not anticipated to result in a trend toward federal listing for the special status terrestrial wildlife species.

### **Special Status Aquatic Species**

#### **Construction, Operations and Maintenance, and Decommissioning**

Neither the TUSK Transmission Alternative B or the Proposed Action would occur within suitable or occupied habitat for any of the special status aquatic species. There would be no impacts to special status aquatic species because of the construction, O&M, or decommissioning of TUSK Transmission Alternative B or the Proposed Action.

### **Special Status Birds and Bats**

#### **Construction, Operations and Maintenance, and Decommissioning**

The TUSK Transmission Alternative B and the Proposed Action would occur within habitat for a variety of special status birds and bats including phainopepla, peregrine falcon, and hoary bat (Bishop-Boros and Moqtaderi 2023; WEST 2023b). No cliff or canyon bat-roosting habitat, IBAs, known raptor nests, or pinyon jay habitat occur within the special status wildlife analysis area of the TUSK Transmission Alternative B or the Proposed Action. Construction of the TUSK Transmission Alternative B could impact special status birds and bats through habitat loss from ground disturbance and/or vegetation crushing, similar to the Proposed Action. Effects from O&M, and decommissioning activities to special status bird and bat species would also be similar. The TUSK Transmission Alternative B or the Proposed Action may result in local impacts to individuals but are not anticipated to result in a trend toward federal listing for the special status bird and bat species.

#### **3.3.4.6 Direct and Indirect Impacts from Beatty Transmission Line Route Group**

### **Special Status Plants**

#### **Construction, Operations and Maintenance, and Decommissioning**

Suitable habitat for two special status plants have been recorded in the vicinity of the Beatty Transmission Alternatives and Proposed Action —black woollypod and Nevada dune beardtongue. A known population of black woollypod would occur within the temporary and permanent ROW areas for Beatty Transmission



Alternatives G, K, and L. No other records of black woollypod would occur within the temporary or permanent ROW areas for any of the other Beatty Transmission Alternatives or the Proposed Action, though suitable habitat would be present along all the Beatty Transmission Alternatives and the Proposed Action. There are no records of Nevada dune beardtongue within the temporary or permanent ROW areas for the Beatty Transmission Alternatives or the Proposed Action, but all the Beatty Transmission Alternatives and the Proposed Action would contain suitable habitat for this plant and populations of this plant occur nearby. Other special status plant species listed in Table 3-25 may be present within the Beatty Transmission Alternatives and the Proposed Action temporary and permanent ROW areas. Pre-construction surveys for special status plants would be conducted to identify special status plant populations. If present, special status plant species could be subject to impacts from ground disturbance, crushing by equipment and personnel, and dust deposition. Pre-construction surveys would be conducted within suitable habitat and individuals found during survey would be protected in place, where feasible. Beatty Transmission Alternatives A, C, G, K, and L and the Proposed Action would all result in similar impacts to special status plants because these Action Alternatives share similar habitat and soil types. With the implementation of EMMs, the construction, O&M, and decommissioning of the Beatty Transmission Alternatives or the Proposed Action may result in local impacts to individuals but are not anticipated to result in a trend toward federal listing for the special status plant species.

### **Special Status Terrestrial Wildlife**

#### **Construction, Operations and Maintenance, and Decommissioning**

The Beatty Transmission Alternatives and the Proposed Action would occur within suitable habitat for a variety of special status terrestrial wildlife including common chuckwalla, desert horned lizard, Great Basin collared lizard, bighorn sheep, Amargosa toad, and an undescribed scorpion species.

The Beatty Action Alternatives would occur within and fully bisect the Bare to Yucca Mountains bighorn sheep seasonal movement corridor. Beatty Transmission Alternatives A, C, and the Proposed Action would include the least amount of movement corridor habitat (approximately 876.1 acres and approximately 196.6 acres within the temporary and permanent ROW areas, respectively). This would be followed by Beatty Transmission Alternative L (approximately 992.4 acres and approximately 208.2 acres within temporary and permanent ROW areas, respectively) then Beatty Transmission Alternative G (approximately 1,435.9 acres and approximately 239.5 acres within temporary and permanent ROW areas, respectively). Beatty Transmission Alternative K would include the most bighorn sheep movement corridor habitat (approximately 1,530.8 acres and approximately 255.9 acres within temporary and permanent ROW areas, respectively). Habitat removal, increased human presence, and noise may temporarily disrupt bighorn sheep use of, and movement within, the corridor. No occupied bighorn sheep habitat would be impacted by the Beatty Transmission Alternatives or the Proposed Action.

The Amargosa toad, a species that may be susceptible to disturbance due to its limited range along the Amargosa River in Oasis Valley, occurs in the vicinity of the Beatty Transmission Alternatives (NDNH 2021b, 2023). The Amargosa toad has been documented to occur within and along the border of the Amargosa River and surrounding spring and wetland habitat within the temporary and permanent ROW areas for the Beatty Transmission Alternatives. The Beatty Transmission Alternatives C and G contain the least amount of suitable habitat that could support the Amargosa toad, followed by the Proposed Action. Beatty Transmission Alternatives A, K, and L contain the most suitable habitat for the Amargosa toad (Table 3-32). Construction-related activities may result in impacts to the Amargosa toad due to mortality by crushing from vehicles and habitat loss and degradation, including increased sedimentation within isolated water

bodies. Impacts may be more severe during and immediately after precipitation events and during the Amargosa toad’s breeding season. The EMMs that would be implemented as part of the Proposed Action would also be implemented for any of the Beatty Transmission Alternatives and would minimize the impacts to the Amargosa toad. The Beatty Transmission Alternatives and the Proposed Action would result in similar impacts to the Amargosa toad, though impacts would be greatest for Beatty Transmission Alternatives A, K, and L.

**Table 3-32. Beatty Transmission Alternatives Estimated Temporary and Permanent ROW Areas within Wetland Habitat**

<b>Alternative</b>	<b>Temporary ROW Area (acres)</b>	<b>Permanent ROW Area (acres)</b>
A	36.3	11.2
C	2.4	0.0
G	1.3	0.0
K	31.3	10.7
L	36.3	11.2
Proposed Action	9.6	2.0

*Table Acronym(s): ROW – Right-of-way*

The Beatty Transmission Line Alternatives A, K, and L would include approximately 15.7 acres of temporary ROW and approximately 4.3 acres of permanent ROW within the suitable habitat for the undescribed scorpion species. The Beatty Transmission Line Alternatives C and G would not occur within the suitable habitat for the undescribed scorpion species. The Proposed Action would include approximately 71.6 acres of temporary ROW and approximately 23.8 acres of permanent ROW within suitable habitat for the undescribed scorpion species. Construction-related activities may result in impacts to this special status species due to mortality by crushing from vehicles and habitat loss and degradation. The EMMs that would be implemented as part of the Proposed Action would also be implemented for any of the Beatty Transmission Alternatives to minimize the impacts to the undescribed scorpion species. Overall, the Beatty Transmission Alternatives would have less overall impact than the Proposed Action to the undescribed scorpion species.

The construction, O&M, and decommissioning of the Beatty Transmission Alternatives or the Proposed Action may result in local impacts to individuals but are not anticipated to result in a trend toward federal listing for the special status terrestrial wildlife species.

**Special Status Aquatic Species**

**Construction, Operations and Maintenance, and Decommissioning**

The Beatty Transmission Alternatives would bisect the Amargosa River and surrounding springs and wetlands. The Beatty Transmission Alternatives would also cross various desert springs and wetland areas along the Amargosa River which could support suitable habitat for the Oasis Valley pyrg. The Beatty Transmission Alternatives C and G would contain the least amount of suitable habitat that could support the Oasis Valley pyrg, followed by the Proposed Action. Beatty Transmission Alternatives A, K, and L would contain the most suitable habitat for the Oasis Velly pyrg (refer to Table 3-32). No construction activities for the Beatty Transmission Alternatives or the Proposed Action would occur within surface waters. Vehicles, equipment, and workers would remain on access roads and transmission towers would be constructed on dry land. However, construction-related activities, including construction of new access roads and improvement of existing access roads, may result in ground disturbance to ephemeral washes. This could result in hydrologic degradation to the desert springs.

Construction-related activities may result in impacts to special status aquatic species due to habitat loss and degradation. The EMMs that would be implemented as part of the Proposed Action would also be implemented for any of the Beatty Transmission Alternatives to minimize the impacts to special status species. The Beatty Transmission Alternatives would result in similar impacts, as compared to the Proposed Action, for special status aquatic species. The construction, O&M, and decommissioning of the Beatty Transmission Alternatives or the Proposed Action may result in local impacts to individuals but are not anticipated to result in a trend toward federal listing for the special status aquatic species.

**Special Status Birds and Bats**

**Construction, Operations and Maintenance, and Decommissioning**

The Beatty Transmission Alternatives and the Proposed Action would occur within habitats for numerous special status birds and bats. The Beatty Transmission Alternatives G and K each would contain cliff and rock outcrop landcover within their temporary ROW areas (approximately 22.3 acres for Beatty Transmission Alternative G and approximately 21.5 acres for Beatty Transmission Alternative K) and permanent ROW areas (approximately 4.5 acres for both Beatty Transmission Alternatives G and K). The cliff and rock outcrop landcover may provide roosting habitat for bats and nesting habitat for raptors and other cliff-nesting birds. No other Beatty Transmission Alternatives or the Proposed Action would contain cliff or canyon bat roosting and bird nesting habitat.

Each of the Beatty Transmission Alternatives and the Proposed Action would cross the Amargosa River. Table 3-32 above lists the acres of temporary and permanent ROW areas in wetland habitat (i.e., marsh and playa) for the Beatty Transmission Alternatives. None of the Beatty Transmission Alternatives or the Proposed Action would disturb riparian vegetation. Impacts to marsh vegetation would be minimized for all Action Alternatives through implementation of the EMMS.

The Beatty Transmission Alternatives A, C, G, K, and L and the Proposed Action would occur within the Oasis Valley IBA. The Beatty Transmission Alternative G would contain the most ROW areas within this IBA, followed by the Beatty Transmission Alternatives A, K, and L, then the Proposed Action. The Beatty Transmission Alternative C is entirely outside the Oasis Valley IBA and would avoid impacts to this IBA (Table 3-33).

**Table 3-33. Beatty Transmission Alternatives Estimated Temporary and Permanent ROW Areas within Important Bird Areas**

<b>Alternative</b>	<b>Temporary ROW Area (acres)</b>	<b>Permanent ROW Area (acres)</b>
A	83.3	27.8
C	0.0	0.0
G	491.5	100.8
K	83.3	27.8
L	83.3	27.8
Proposed Action	50.1	16.7

*Table Acronym(s): ROW – Right-of-way*

The Beatty Transmission Alternatives G and K would result in greater impacts to special status bats than the Proposed Action and other Beatty Transmission Alternatives because of the impacts to potential bat-roosting habitat. With the implementation of EMMs, the construction, O&M, and decommissioning of the Beatty

Transmission Alternatives or the Proposed Action may result in local impacts to individual birds and bats but are not anticipated to result in a trend toward federal listing for the special status bird and bat species.

### **3.3.4.7 Direct and Indirect Impacts from Scotty's Junction Transmission Line Route Group**

#### **Special Status Plants**

##### **Construction, Operations and Maintenance, and Decommissioning**

One special status plant, Nevada dune beardtongue, has been recorded in the vicinity of the Scotty's Junction Transmission Alternatives. The temporary and permanent ROW areas for Scotty's Junction Transmission Alternatives A, B, or the Proposed Action would not occur in areas of known records of this plant, though suitable habitat would be present. Other special status plant species listed in Table 3-25 in Section 3.3.3 may be present within the Scotty's Junction Transmission Alternatives and the Proposed Action temporary and permanent ROW areas. Pre-construction surveys for special status plants would be conducted to identify special status plant populations in these areas. If present, special status plants would be subject to impacts from ground disturbance; crushing by equipment and personnel; and dust deposition, as described under the Proposed Action. Scotty's Junction Transmission Alternatives A and B would result in similar impacts on special status plants' suitable habitat from construction, O&M, or decommissioning of the GLWP compared to the Proposed Action. The construction, O&M, and decommissioning of the Scotty's Junction Transmission Alternatives or the Proposed Action may result in local impacts to individual species but are not anticipated to result in a trend toward federal listing for the special status plant species.

#### **Special Status Terrestrial Wildlife**

##### **Construction, Operations and Maintenance, and Decommissioning**

The Scotty's Junction Transmission Alternatives A and B, and the Proposed Action, primarily occur within Sonora-Mojave Creosotebush-White Bursage Desert Scrub and Sonora-Mojave Mixed Salt Desert Scrub vegetation communities which provide habitat for desert-tolerant terrestrial wildlife species, including desert bighorn sheep, Great Basin small blue butterfly, monarch butterfly, red-tailed blazing star bee, and multiple reptile species listed in Table 3-26 in Section 3.3.3. Based on the size of suitable habitat that would be impacted during construction, O&M, and decommissioning, Scotty's Junction Transmission Alternative A would result in greater impacts on terrestrial wildlife habitat than the Proposed Action (approximately 80.6 more acres of impact within the temporary ROW area and approximately 27.0 more acres of impacts within the permanent ROW area than the Proposed Action). Scotty's Junction Transmission Alternative B would result in less acres of impact on terrestrial wildlife habitat than the Proposed Action (approximately 20.4 more acres of impacts within the temporary ROW area and approximately 6.1 more acres of impacts within the permanent ROW area than the Proposed Action). However, with the implementation of EMMs, impacts on special status terrestrial wildlife would be similar under all Scotty's Junction Action Alternatives.

The temporary and permanent ROW areas for the Proposed Action would occur within desert bighorn sheep occupied habitat (approximately 46.4 acres within the temporary ROW area and approximately 13.6 acres within the permanent ROW area) on the east side of US 95. The occupied habitat would not be impacted by the Scotty's Junction Alternatives A or B, which are located west of US 95 outside of occupied habitat. The Scotty's Junction Alternatives A and B would result in less impacts on desert bighorn sheep than the Proposed Action.

With the implementation of EMMs, the construction, O&M, and decommissioning of the Beatty Transmission Alternatives or the Proposed Action may result in local impacts to individuals but are not anticipated to result in a trend toward federal listing for the special status terrestrial wildlife species.

### **Special Status Aquatic Species**

#### **Construction, Operations and Maintenance, and Decommissioning**

Neither the Scotty's Junction Transmission Alternatives A, B, or the Proposed Action would occur within suitable or occupied habitat for any of the special status aquatic species. The Scotty's Junction Action Alternatives would not impact special status aquatic species.

### **Special Status Bird and Bats**

#### **Construction, Operations and Maintenance, and Decommissioning**

The Scotty's Junction Transmission Alternatives A and B and the Proposed Action would primarily occur within Sonora-Mojave Creosotebush-White Bursage Desert Scrub and Sonora-Mojave Mixed Salt Desert Scrub vegetation communities, which provide habitat for a variety of special status birds and bats. Direct impacts on birds and bats and impacts on suitable habitat for birds and bats would be similar under the Scotty's Junction Transmission Alternatives A and B as those described for the Proposed Action.

With the implementation of EMMs and the BBCS (Appendix H), the construction, O&M, and decommissioning of the Beatty Transmission Alternatives or the Proposed Action may result in local impacts to individuals but are not anticipated to result in a trend toward federal listing for the special status bird and bat species.

### **3.3.4.8 Direct and Indirect Impacts from Mason Valley WMA Transmission Line Route Group**

### **Special Status Plants**

#### **Construction, Operations and Maintenance, and Decommissioning**

Various special status plant species listed in Table 3-25 in Section 3.3.3 may be present within Mason Valley WMA Transmission Alternative A and the Proposed Action temporary and permanent ROW areas. Pre-construction surveys for special status plants would be conducted to identify special status plant populations along these Action Alternatives. If present, special status plants would be subject to impacts from ground disturbance, crushing by equipment and personnel, and dust deposition as described under the Proposed Action. The Mason Valley WMA Transmission Alternative A would result in similar impacts on special status plants' suitable habitat from construction, O&M, or decommissioning relative to the Proposed Action.

The construction, O&M, and decommissioning of the Mason Valley WMA Transmission Alternative A or the Proposed Action may result in local impacts to individual plant species but are not anticipated to result in a trend toward federal listing for the special status plants.

### **Special Status Terrestrial Wildlife**

#### **Construction, Operations and Maintenance, and Decommissioning**

The Mason Valley WMA Transmission Alternative A and Proposed Action would primarily occur within the Inter-Mountain Basins Greasewood Flat, Inter-Mountain Basins Mixed Salt Desert Scrub, and Great Basin Foothill and Lower Montane Riparian Woodland and Shrubland, which all provide suitable habitat for special status terrestrial wildlife. Mason Valley WMA Transmission Alternative A would cross the Walker

River just northeast of the Mason Valley WMA in an area with shallow canyon walls and scattered riparian vegetation. The Proposed Action would cross the Walker River within the Mason Valley WMA adjacent to an existing railroad crossing of the river. Approximately 15.6 acres of temporary ROW and approximately 6.0 acres of permanent ROW areas would occur within riparian habitat along the Walker River crossings under the Proposed Action. The Mason Valley WMA Transmission Alternative A would include approximately 12.8 acres of temporary ROW and approximately 2.0 acres of permanent ROW areas within riparian habitat. In addition, the Proposed Action would cross the Perk, Joggles, and Perazzo slough areas that provide high-value habitat for some special status terrestrial wildlife species, whereas Mason Valley WMA Transmission Alternative A would be located north of these sloughs in lower-value habitat.

Mason Valley WMA Transmission Alternative A would avoid two major water resources compared to the Proposed Action. Contributions to fragmentation of high-value terrestrial wildlife habitat within the sloughs that would occur under the Proposed Action would not occur under the Mason Valley WMA Transmission Alternative A. In addition, Mason Valley WMA Transmission Alternative A would act as less of a barrier to terrestrial wildlife coming to and from the WMA than the Proposed Action because the majority of the Mason Valley WMA Transmission Alternative A route would not be located within the Mason Valley WMA. As a result, impacts to special status terrestrial wildlife under the Proposed Action would be greater than impacts under the Mason Valley WMA Transmission Alternative A. With the implementation of EMMs and due to the availability of suitable habitat for special status terrestrial wildlife species in the areas surrounding these Action Alternatives, the construction, O&M, and decommissioning of the Mason Valley WMA Transmission Alternative A or the Proposed Action may result in local impacts to individuals but are not anticipated to result in a trend toward federal listing for the special status terrestrial wildlife species.

### **Special Status Aquatic Species**

#### **Construction, Operations and Maintenance, and Decommissioning**

The Mason Valley WMA Transmission Alternative A would cross the Walker River in special status aquatic species habitat—specifically the mountain whitefish. The Mason Valley WMA Transmission Alternative A would span one segment of the main channel of the Walker River, just northeast of the Mason Valley WMA, while the Proposed Action would traverse the main channel of Walker River adjacent to the Mason Valley WMA and the Joggles and Perk sloughs. The mountain whitefish is known to prefer large river segments with a minimum pool depth of four feet (NDOW 2012). Where the Proposed Action would cross the sloughs, both sloughs are likely to maintain segments of at least a four-foot depth. Since the Mason Valley WMA Transmission Alternative A would avoid the Perk and Joggles sloughs, this alternative would have less impact to mountain whitefish compared to the Proposed Action. The construction, O&M, and decommissioning of the Mason Valley WMA Transmission Alternative A or the Proposed Action may result in local impacts to individuals but are not anticipated to result in a trend toward federal listing for the special status aquatic species.

### **Special Status Birds and Bats**

#### **Construction, Operations and Maintenance, and Decommissioning**

The Mason Valley WMA Transmission Alternative A and Proposed Action would primarily occur within Inter-Mountain Basins Greasewood Flat, Inter-Mountain Basins Mixed Salt Desert Scrub, and Great Basin Foothill and Lower Montane Riparian Woodland and Shrubland vegetation communities that provide habitat for a variety of special status birds and bats. Three surface water features and associated marsh

and riparian vegetation (Walker River, Perk Slough, and Joggles Slough) would occur within the Mason Valley WMA area. Approximately 15.6 acres of temporary ROW and approximately 6.0 acres of permanent ROW areas of the Proposed Action would occur within riparian habitat along the Walker River crossings. The Mason Valley WMA Transmission Alternative A would include approximately 12.8 acres of temporary ROW and approximately 2.0 acres of permanent ROW areas within riparian habitat. Both the Mason Valley WMA Transmission Alternative A and the Proposed Action would traverse perennial segments of the Walker River at different locations north of the WMA. The Perk and Joggles sloughs, which provide high-value habitat for birds and bats, flow north from the Mason Valley WMA. The Proposed Action would cross these two sloughs before meeting Walker River, while the Mason Valley WMA Transmission Alternative A does not cross these two sloughs. As such, the Mason Valley WMA Transmission Alternative A would avoid two major water resources and associated bird and bat habitat that would be impacted by the Proposed Action. Contributions to fragmentation of high-value bird and bat habitat within the sloughs that would occur under the Proposed Action would not occur under Mason Valley WMA Transmission Alternative A. Approximately 0.2 miles of access roads within the WMA's boundaries would be utilized under the Mason Valley WMA Transmission Alternative A compared to approximately 3.4 miles of access roads within the WMA's boundaries for the Proposed Action. As a result, impacts on special status birds and bats would be greater under the Proposed Action than under the Mason Valley WMA Alternative A. The construction, O&M, and decommissioning of the Mason Valley WMA Transmission Alternative A or the Proposed Action may result in local impacts to individuals but are not anticipated to result in a trend toward federal listing for the special status bird and bat species.

### **3.3.4.9 Direct and Indirect Impacts from Carson River Transmission Line Route Group**

#### **Special Status Plants**

##### **Construction, Operations and Maintenance, and Decommissioning**

Three special status plants—Churchill Narrows buckwheat, Nevada suncup, and Tiehm's peppergrass—have been recorded in the vicinity of the Carson River Transmission Alternatives A and C and the Proposed Action. The Carson River Transmission Alternative A and C and the Proposed Action would occur within suitable habitat for the Churchill Narrows buckwheat (Silver Sage Eco 2023a). The Carson River Transmission Alternative A would include approximately 1.4 acres of temporary ROW and approximately 0.7 acres of permanent ROW areas within suitable habitat for the Churchill Narrows buckwheat. The Carson River Transmission Alternative C would include approximately 13.3 acres of temporary ROW and approximately 1.8 acres of permanent ROW areas within suitable habitat for Churchill Narrows buckwheat. The Proposed Action would include approximately 82.4 acres of temporary ROW and approximately 25 acres of permanent ROW areas within suitable habitat for Churchill Narrows buckwheat. No Churchill Narrows buckwheat individuals were identified during surveys within either temporary ROW areas of the Carson River Transmission Alternatives A and C (Silver Sage Eco 2023a). Additionally, a 2011 survey (BLM 2012a) did not identify occupied habitat within the temporary ROW area for these two alternatives, but approximately 4.0 acres of occupied habitat would occur within the Proposed Action temporary ROW area. Low-quality suitable habitat (e.g., more eroded soils, invasive species) was identified along the Carson River Transmission Alternatives A and C (Silver Sage Eco 2023a); the potential for this plant to occupy suitable habitat within Carson River Alternatives A and C is low. The Carson River Transmission Alternatives A and C would result in less impact on Churchill Narrows buckwheat than the Proposed Action. Carson River Transmission Alternatives A and C would not result in a trend towards federal listing or loss of viability of Churchill Narrows Buckwheat.

Carson River Transmission Alternatives A and C and the Proposed Action would occur within suitable habitat for Tiehm's peppergrass. No known populations of Tiehm's peppergrass occur in the temporary or permanent ROW areas of the Carson River Transmission Alternatives A or C. Carson River Transmission Alternative A and C would result in less impacts than the Proposed Action because these alternatives avoid impacts to a known population of Tiehm's peppergrass.

The Carson River Transmission Alternatives A and C and the Proposed Action would all occur within suitable habitat for Nevada suncup along the southern aspect of Churchill Butte. Impacts on these plants under the Carson River Transmission Alternatives A and C would be similar to the Proposed Action.

Other special status plant species listed in Table 3-25 in Section 3.3.3. Affected Environment may be present within the Carson River Transmission Alternatives and the Proposed Action temporary and permanent ROW areas. Pre-construction surveys for special status plants would be conducted to identify special status plant populations. If present, special status plant species could be subject to impacts from ground disturbance, crushing by equipment and personnel, and dust deposition. Pre-construction surveys would be conducted within suitable habitat and individuals found during survey would be protected in place, where feasible.

Overall, the Carson River Transmission Alternatives A and C and the Proposed Action would result in similar impacts to special status plants, with the exception of the Churchill Narrows buckwheat and Tiehm's peppergrass. With the implementation of EMMs (Appendix C), the construction, O&M, and decommissioning of the Carson River Transmission Alternative A and C may result in local impacts to individuals but is not anticipated to result in a trend toward federal listing or loss of viability for the special status plant species. The Proposed Action would also result in local impacts to individuals. However, the Proposed Action would result in a trend toward federal listing for Tiehm's peppergrass and Churchill Narrows buckwheat due to the limited range of this species.

#### **Additional Measures to Avoid and/or Minimize Impacts**

A spatial-avoidance buffer developed in coordination with the USFWS would be implemented for all areas within 1,640 feet of known extant populations of Churchill Narrows buckwheat identified by the BLM in 2011 (BLM 2012a) and populations identified during pre-construction surveys. This avoidance buffer would include but is not limited to construction of GLWP components and access roads and vehicular or pedestrian access. Where feasible, GLWP components would be moved to maintain a 1,640-foot avoidance buffer from previously known populations of Churchill Narrows buckwheat and suitable Churchill Narrows buckwheat habitat identified during pre-projects surveys.

#### **Special Status Terrestrial Wildlife**

##### **Construction, Operations and Maintenance, and Decommissioning**

The Carson River Transmission Alternatives A and C and the Proposed Action would occur within Inter-Mountain Basins Mixed Salt Desert Scrub and Great Basin Foothill and Lower Montane Riparian Woodland and Shrubland, which all provide suitable habitat for special status terrestrial wildlife. High-value habitat for terrestrial wildlife species includes riparian vegetation along the Carson River. The Carson River Transmission Alternative A would include approximately 57.2 acres of temporary and approximately 19.3 acres of permanent ROW areas within riparian vegetation, marsh, and playa habitat. The Carson River Transmission Alternative C would include approximately 62.4 acres of temporary and approximately 20.0 acres of permanent ROW areas within riparian vegetation, marsh, and playa habitat. The Proposed



Action would include approximately 88.8 acres of temporary and approximately 25.3 acres of permanent ROW areas within riparian vegetation, marsh, and playa habitat.

The Carson River Transmission Alternative A would consolidate the location of the 345-kV transmission lines crossings of the Carson River. Consolidating the transmission line crossings over the Carson River would not result in any notable change in the acres of disturbance to habitat. Consolidating the crossings would, however, result in less impact to individual species by reducing exposure to disturbances such as human presence and noise when compared to Carson River Transmission Alternative C and the Proposed Action. Because transmission tower structures would promote avian predator occupancy along the alignment (Knight and Kawashima 1993), the greater separation of the river crossing by the three 345-kV transmission lines in both the Proposed Action and Carson River Transmission Line Alternative C would expand predation opportunities on the local terrestrial prey.

While impacts on special status terrestrial wildlife species would be greater under Carson River Alternative C and the Proposed Action, the construction, O&M, and decommissioning of the Carson River Transmission Alternatives A and C and the Proposed Action may result in local impacts to individuals but are not anticipated to result in a trend toward federal listing for the special status terrestrial wildlife species.

### **Special Status Aquatic Species**

#### **Construction, Operations and Maintenance, and Decommissioning**

The Carson River Transmission Alternative A would require a similar amount of disturbance to aquatic habitat within its temporary and permanent ROW areas as Carson River Transmission Alternative C and the Proposed Action, but in a different location. Impacts associated with habitat degradation from vegetation removal, movement of soil, and runoff would be similar for the Carson River Transmission Alternatives A and C and the Proposed Action.

The construction, O&M, and decommissioning of the Carson River Transmission Alternatives may result in local impacts to individuals but are not anticipated to result in a trend toward federal listing for the special status aquatic species.

### **Special Status Birds and Bats**

#### **Construction, Operations and Maintenance, and Decommissioning**

The Carson River Transmission Alternatives would primarily occur within Inter-Mountain Basins Mixed Salt Desert Scrub, Inter-Mountain Basins Big Sagebrush Shrubland, and Great Basin Foothill and Lower Montane Riparian Woodland and Shrubland, which provide habitat for special status birds and bats. Cliff and canyon habitat along the Carson River provides suitable habitat for cliff-roosting bats and the entire stretch of the Carson River in this area provides high-value riparian and aquatic habitat for special status birds and bats. Each of the Carson River Transmission Alternatives would impact this habitat.

Carson River Transmission Alternative A would include approximately 11.3 acres of cliff and canyon bat-roosting habitat within its temporary ROW area and approximately 2.0 acres in its permanent ROW area. Carson River Transmission Alternative C would include approximately 15.1 acres of cliff and canyon bat-roosting habitat within its temporary ROW area and approximately 4.8 acres in its permanent ROW area. The Proposed Action would include approximately 14.5 acres of cliff and canyon bat-roosting habitat within its temporary ROW area and approximately 2.1 acre within its permanent ROW area.

The Carson River Transmission Alternative A would include approximately 57.2 acres of riparian vegetation, marsh, and playa habitat within its temporary ROW and approximately 19.3 acres within its

permanent ROW areas. The Carson River Transmission Line Alternative C would include approximately 62.4 acres of temporary ROW and approximately 20.0 acres of permanent ROW within riparian vegetation, marsh, and playa habitat. The Proposed Action would include approximately 88.8 acres of temporary and approximately 25.3 acres of permanent ROW areas within riparian vegetation, marsh, and playa habitat.

Overall, both the Carson River Transmission Alternatives A and C would provide slightly less impact to habitat for special status birds and bats compared to the Proposed Action. However, the impacts from these two Action Alternatives would be similar with the implementation of EMMs (Appendix C) and the BBCS (Appendix H).

The construction, O&M, and decommissioning of the Carson River Transmission Alternatives may result in local impacts to individuals but are not anticipated to result in a trend toward federal listing for the special status bird and bat species.

### **3.3.4.10 Direct and Indirect Impacts from Amargosa Substation Group**

#### **Special Status Plants**

##### **Construction, Operations and Maintenance, and Decommissioning**

Neither the AS-1 nor the AS-2 (Proposed Action) would occur within suitable or occupied habitat for special status plants. Therefore, there would be no impact to special status plants from the construction, O&M, or decommissioning of AS-1 or AS-2 (Proposed Action).

#### **Special Status Terrestrial Wildlife**

##### **Construction, Operations and Maintenance, and Decommissioning**

The AS-1 and AS-2 (Proposed Action) would be approximately 109 acres in size. Impacts on special status terrestrial wildlife from AS-1 would be similar to the impacts from construction, O&M, and decommissioning as the AS-2 (Proposed Action) with one exception. Five of the special status terrestrial wildlife species are only known to occur at two locations, Big Dune and Lava Dune in the Amargosa Valley (USFWS 2012). The AS-1 is located approximately 5.2 miles west of Lava Dune and is not anticipated to interfere with sand transport to the dune. Impacts to Amargosa miloderes weevil, Amargosa Valley darkling beetle, Ash Meadows dune scorpion, Giuliani's dune scarab, and Large aegialian scarab would not occur under the AS-1 Alternative.

During O&M, the AS-2 (Proposed Action) may contribute in a trend toward federal listing or loss of viability of the five special status terrestrial wildlife species found on Big Dune and Lava Dune. The location and height of this substation may interrupt the sand's transport and natural deposition rate and pattern to Lava Dune. Because Lava Dune is one of only two locations where these five species are known to occur, the AS-2 (Proposed Action) may alter a substantial portion of the habitat available for these species, potentially resulting in population-level effects.

#### **Special Status Aquatic Species**

##### **Construction, Operations and Maintenance, and Decommissioning**

Neither the AS-1 nor AS-2 (Proposed Action) would occur within suitable or occupied habitat for special status aquatic species. There would be no impact to special status aquatic species from the construction, O&M, or decommissioning of AS-1 or AS-2 (Proposed Action).

### **Special Status Birds and Bats**

#### **Construction, Operations and Maintenance, and Decommissioning**

The AS-1 and AS-2 (Proposed Action) both would primarily occur within the Sonora-Mojave Creosotebush-White Bursage Desert Scrub vegetation community which provides habitat for special status migratory birds and bats. Both substation alternatives would occupy approximately 109 acres. The AS-1 would be similar to the impacts on special status birds and bats from construction, O&M, and decommissioning from the AS-2 (Proposed Action). The construction, O&M, and decommissioning of the AS-1 and AS-2 (Proposed Action) may result in local impacts to individuals but are not anticipated to result in a trend toward federal listing for the special status bird and bat species.

#### **3.3.4.11 Direct and Indirect Impacts from Esmeralda Substation Group**

### **Special Status Plants**

#### **Construction, Operations and Maintenance, and Decommissioning**

The ES-1, ES-2 (Proposed Action), and ES-3 would primarily occur within the Inter-Mountain Basins Mixed Salt Desert Scrub vegetation community, which may provide habitat for special status plants. Prior to construction, surveys for special status plants would be conducted within suitable habitat. Individuals detected on these surveys would be protected in place, where feasible. The ES-1 and ES-3 would be similar to the impacts on special status plants from construction, O&M, and decommissioning from the ES-2 (Proposed Action). The construction, O&M, and decommissioning of the ES-1, ES-2 (Proposed Action), and ES-3 may result in local impacts to individuals but are not anticipated to result in a trend toward federal listing for the special status plant species.

### **Special Status Terrestrial Wildlife**

#### **Construction, Operations and Maintenance, and Decommissioning**

The ES-1, ES-2 (Proposed Action), and ES-3 would all occur within the Inter-Mountain Basins Mixed Salt Desert Scrub vegetation community and would all be approximately 109 acres in size. The ES-1 and ES-3 impacts would be similar to the impacts on special status terrestrial wildlife from construction, O&M, and decommissioning from the ES-2 (Proposed Action).

The construction, O&M, and decommissioning of the ES-1, ES-2 (Proposed Action), and ES-3 may result in local impacts to individuals but are not anticipated to result in a trend toward federal listing for the special status terrestrial wildlife species.

### **Special Status Aquatic Species**

#### **Construction, Operations and Maintenance, and Decommissioning**

ES-1, ES-2 (Proposed Action), and ES-3 do not occur within suitable or occupied habitat for any of the special status aquatic species. There would be no impact to special status aquatic species from the construction, O&M, and decommissioning of ES-1, ES-2 (Proposed Action), or ES-3.

### **Special Status Birds and Bats**

#### **Construction, Operations and Maintenance, and Decommissioning**

The ES-1, ES-2 (Proposed Action), and ES-3 would occur within the Inter-Mountain Basins Mixed Salt Desert Scrub vegetation community and are all approximately 109 acres in size. The ES-1 and ES-3 would have similar impacts on special status birds and bats from construction, O&M, and decommissioning from

the Proposed Action (ES-2). The construction, O&M, and decommissioning of the ES-1, ES-2 (Proposed Action), and ES-3 may result in local impacts to individuals but are not anticipated to result in a trend toward federal listing for the special status bird and bat species.

#### **3.3.4.12 Direct and Indirect Impacts from Amargosa Microwave Group**

##### **Special Status Plants**

###### **Construction, Operations and Maintenance, and Decommissioning**

Neither the AM-1 nor the AM-2 (Proposed Action) would occur within suitable or occupied habitat for special status plants. There would be no impact to special status plants from the construction, O&M, or decommissioning of AM-1 or AM-2 (Proposed Action).

##### **Special Status Terrestrial Wildlife**

###### **Construction, Operations and Maintenance, and Decommissioning**

The AM-1 and AM-2 (Proposed Action) would both primarily occur within the Sonora-Mojave Creosotebush-White Bursage Desert Scrub vegetation community and would be approximately 2.3 acres in size. The AM-1 would be similar to the impacts on special status terrestrial wildlife from construction, O&M, or decommissioning from the AM-2 (Proposed Action). The construction, O&M, and decommissioning of the AM-1 and AM-2 (Proposed Action) may result in local impacts to individuals but are not anticipated to result in a trend toward federal listing for the special status terrestrial wildlife species.

##### **Special Status Aquatic Species**

###### **Construction, Operations and Maintenance, and Decommissioning**

Neither the AM-1 nor AM-2 (Proposed Action) would occur within suitable or occupied habitat for special status aquatic species. There would be no impact to special status aquatic species from the construction, O&M, or decommissioning of the AM-1 or AM-2 (Proposed Action).

##### **Special Status Birds and Bats**

###### **Construction, Operations and Maintenance, and Decommissioning**

The AM-1 and AM-2 (Proposed Action) would both occur within the Sonora-Mojave Creosotebush-White Bursage Desert Scrub vegetation community and would be approximately 2.3 acres in size. The AM-1 impacts on special status birds and bats would be similar to impacts from construction, O&M, and decommissioning of the AM-2 (Proposed Action). The construction, O&M, and decommissioning of the AM-1 and AM-2 (Proposed Action) may result in local impacts to individuals but are not anticipated to result in a trend toward federal listing for the special status bird and bat species.

#### **3.3.4.13 Impacts from Anti-Perching/Nesting Mitigation Measure**

Refer to Additional Measures to Avoid and/or Minimize Impacts for Bi-State sage-grouse and Mojave desert tortoise in Section 3.1.4.2 for detailed information regarding this mitigation measure. Approximately 224 miles of the Action Alternative transmission lines within these two species' habitats would be replaced lattice structure with tubular H-frame structures. The impacts of the anti-perching/nesting mitigation measure on special status species are described below.

## **Special Status Plants**

### **Construction, Operations and Maintenance, and Decommissioning**

The anti-perching/nesting mitigation measure would require approximately 25 percent more tubular H-frame structures and associated permanent disturbance to be constructed within Mojave desert tortoise and Bi-State sage-grouse habitat areas. This increase in structures and disturbance would increase habitat loss for special status plants compared to lattice structures. Special status plants with delineated habitat or records near the areas where the anti-perching/nesting mitigation would be implemented include Las Vegas bearpoppy, Clokey buckwheat, Nevada dune beardtongue, black woolleypod, white-margined beardtongue, halfring milkvetch, Reese River phacelia, Cima milkvetch, and Wassuk beardtongue. As described under the Proposed Action, pre-construction surveys for special status plants would be conducted within suitable habitat and individuals detected during survey would be protected in place, where feasible. The anti-perching/nesting mitigation measure may result in an increase in local impacts to individuals but is not anticipated to result in a trend toward federal listing for the special status plant species.

## **Special Status Terrestrial Wildlife**

### **Construction, Operations and Maintenance, and Decommissioning**

The approximately 25 percent additional number of tubular H-frame structures and associated permanent disturbance for the anti-perching/nesting mitigation measure would increase habitat loss for special status terrestrial wildlife. Although the anti-perching/nesting mitigation measure would result in additional habitat loss, it is anticipated to provide a net benefit to terrestrial wildlife compared to the Proposed Action. The net benefit would be due to a decrease in localized predation terrestrial wildlife species by ravens and raptors along the temporary and permanent ROW areas.

The use of tubular H-frame structures, rather than guyed lattice structures, along the section of the GLWP 525-kV transmission line near Lava Dune in the Amargosa Valley may result in additional disruptions to the rate and pattern of sand deposition to the dune. The lattice structures constructed under the Proposed Action are anticipated to allow wind to pass through the structures, while the tubular H-frame towers constructed according to the anti-perching/nesting mitigation are solid and may interfere with sand transport. Because Lava Dune is one of only two locations Amargosa miloderes weevil, Amargosa Valley darkling beetle, Ash Meadows dune scorpion, Giuliani's dune scarab, and Large aegialian scarab are known to occur, actions that alter sand deposition patterns and rates to this location have the potential to alter the habitat available for these five species. Impacts from the H-frame structures in combination with the AS-1 location may result in impacts to individuals but would not result in population-level effects resulting in a trend toward federal listing. Impacts from the H-frame structures in combination with the impacts from the AS-2 (Proposed Action) location may result in population-level effects resulting in a trend toward federal listing.

## **Special Status Aquatic Species**

### **Construction, Operations and Maintenance, and Decommissioning**

Impacts from the anti-perching/nesting mitigation measure on special status aquatic wildlife species would be similar to those discussed in the impacts common to all Action Alternatives above.

## **Special Status Birds and Bats**

### **Construction, Operations and Maintenance, and Decommissioning**

The approximately 25 percent additional number of tubular H-frame structures and associated permanent disturbance for the anti-perching/nesting mitigation measure would increase habitat loss for special status birds and bats. Unlike the guyed lattice structures, the tubular H-frame towers would be self-supporting structures, which would reduce collision risk to special status birds and bats from guy wires. The implementation of tubular H-frame structures along the temporary and permanent ROW areas near the Oasis Valley IBA would support suitable habitat for special status migratory bird prey species. The anti-perching/nesting mitigation measure may result in local impacts to individuals but is not anticipated to result in a trend toward federal listing for the special status bird and bat species.

### **3.4 Bald and Golden Eagles**

Refer to Appendix AB. Other Resources/Uses Analyzed in Detail for a discussion of the affected environment and environmental consequences associated with bald and golden eagles from the implementation of the Action and No Action Alternatives. Any changes that have been made to Section 3.4 are a result of comments and input on the Draft EIS/RMPA. Refer to Section 3.18.6.4 for the cumulative impacts associated with bald and golden eagles.

### **3.5 General Wildlife**

Refer to Appendix AB. Other Resources/Uses Analyzed in Detail for a discussion of the affected environment and environmental consequences associated with general wildlife from the implementation of the Action and No Action Alternatives. Any changes that have been made to Section 3.5 are a result of comments and input on the Draft EIS/RMPA. Refer to Section 3.18.6.5 for the cumulative impacts associated with general wildlife.

### **3.6 Cultural Resources**

The classification of a cultural resource for this Final EIS/Proposed RMPA includes all districts, sites, buildings, structures, objects, and landscapes that have been created by or are associated with humans and are considered to have historical or cultural significance. This section addresses cultural resources compliance within the context of NEPA and NHPA.

#### **3.6.1 Issues Identified for Analysis**

- What types of archaeologically identifiable cultural resources are present and are they eligible for listing in the National Register of Historic Places (NRHP)?
- Would historic properties be affected by physical, visual, atmospheric, and cumulative changes to the environment caused by construction, O&M, and decommissioning?
- Could project siting and design avoid adverse effects to historic properties? If adverse effects to historic properties cannot be avoided, could they be mitigated to resolve adverse effects?

## 3.6.2 Regulatory Context

### 3.6.2.1 The National Historic Preservation Act

The 1966 NHPA marked a new era of federal historic preservation after years of urban renewal resulted in the loss of many historic buildings across the country. The NHPA included many components, such as establishing and funding State Historic Preservation Officers (SHPO), Tribal Historic Preservation Officers (THPO), and the ACHP; authorizing the NRHP; and introducing Section 106, among other inclusions. Section 106 of the NHPA (Section 106) requires federal agencies to consider the effects of their undertakings on historic properties and offer the ACHP a reasonable opportunity to comment. The GLWP is considered a federal action subject to the compliance requirements of Section 106. This section of the Final EIS/Proposed RMPA was completed in partial fulfillment of the BLM's responsibility under Section 106 and NEPA. Federal agencies have independent statutory obligations under NHPA and NEPA. The regulations for both Section 106 and NEPA encourage coordination/integration of their respective processes with the other to provide efficiencies, improve public understanding, and lead to more informed decisions.

### 3.6.2.2 36 CFR 800.8(c) Coordination with the NEPA Substitution

The ACHP advises federal agencies to coordinate the compliance requirements of Section 106 and its regulations (36 CFR 800) with the requirements of NEPA. To this end, the BLM has chosen to fulfill its obligations under Section 106 by using the process outlined in 36 CFR 800.8(c), otherwise known as "NEPA substitution," rather than the traditional Section 106 review process. The regulation allows federal agencies officials to "use the process and documentation required for the preparation of an EA/FONSI or an EIS/ROD to comply with Section 106 in lieu of procedures set forth in 36 CFR 800.3 through 800.6. Per 36 CFR 800.8(c)(1) the agency official must notify the SHPO/THPO and the ACHP in advance of its intention to use the substitution process."

The NEPA substitution process is intended to occur as part of the NEPA process and helps streamline Section 106 compliance. Notably, the substitution process incorporates the four major steps of the Section 106 process: 1) initiate the Section 106 process, 2) identify historic properties, 3) assess adverse effects, and 4) resolve adverse effects. It also requires consultation with SHPO/THPO, ACHP, and Native American Tribes.

The NEPA substitution process also requires that the agency meet specific standards in developing environmental documents set forth in 36 CFR 800.8(c)(1), including:

- Identify consulting parties, including SHPO and/or THPO, ACHP, Native American Tribes through 36 CFR 800.3(f) and the NEPA scoping process (36 CFR 800.8(c)(1)(i));
- Identify historic properties and assess the undertaking's effects on such properties consistent with the standards and criteria in 36 CFR 800.4 and 800.5 (36 CFR 800.8(c)(1)(ii));
- Consultation on the undertaking's effects on historic properties with SHPO and/or THPO, ACHP, other consulting parties and Native American Tribes that may attach religious and cultural significance to affected properties, during NEPA scoping, environmental analysis, and preparation of the Draft EIS (36 CFR 800.8(c)(1)(iii));
- Involve the public consistent with the agency's NEPA procedures (36 CFR 800.8(c)(1)(iv)); and

- Through consultation, develop alternatives and proposed measures that might avoid, minimize or mitigate any adverse effect of the undertaking on historic properties and describe the measures in the Draft NEPA document (36 CFR 800.8(c)(1)(v)).

The consulting parties and public would have an opportunity to review and comment on the Draft NEPA document (36 CFR 800.8(c)(2)). All consulting parties and/or the ACHP would be able to object to the lead federal agency during the public comment period on the Draft NEPA document that the document has not met the standards set forth in 36 CFR 800.8(c). The consulting agencies may also object that the resolution of the effects on historic properties proposed in the Draft NEPA document is inadequate. After publication of the Final NEPA document, the agency may approve the undertaking through a Finding of No Significant Impact (FONSI)/ROD, which must include binding commitment measures to avoid, minimize, or mitigate adverse effects (36 CFR 800.8(c)(4)). Since the FONSI/ROD contains such commitments to impose measures to resolve adverse effects, then neither a memorandum of agreement nor a programmatic agreement would be necessary for the undertaking.

The NHPA and NEPA have different vocabularies that are parallel but distinct from one another. Both NHPA and NEPA terms are used throughout this section, and the specific definitions of those terms are provided below (refer to Table 3-34). Note that “impacts” and “effects” are synonymous in NEPA and both terms may be used throughout this document; “effects” is the preferred term since it is also used in NHPA.

**Table 3-34. NEPA and NHPA Terms and Definitions**

NEPA Term and Definition	NHPA Term and Definition
<p><i>Cultural Resources</i> Effects considered under NEPA include cultural and historic (40 CFR § 1508.1(g)).</p>	<p><i>Historic Property</i> Any prehistoric or historic district, site, building, structure, or object included in or eligible for inclusion in the NRHP (36 CFR § 800.16.(l)(1)). Properties of religious and cultural significance to Indian Tribes and Native Hawaiian organizations may be determined eligible for inclusion in the NRHP.</p>
<p><i>Major Federal Action or Action</i> Activity or decision subject to federal control and responsibility, such as new and continuing activities including projects and programs entirely or partly financed, assisted, conducted, regulated, or approved by federal agencies; new or revised agency rules, regulations, plans, policies, or procedures; and legislative proposals (40 CFR § 1508.1(q)).</p>	<p><i>Undertaking</i> A project, activities, or program funded in whole or in part under the direct or indirect jurisdiction of a federal agency, including those carried out by or on behalf of a federal agency; those carried out with federal financial assistance; and those requiring a federal permit, license, or approval (36 CFR § 800.16(y)).</p>
<p><i>Affected Environment or Analysis Area</i> The environment of the area(s) to be affected or created by the alternatives under consideration, including the reasonably foreseeable environmental trends and planned actions in the area(s) (40 CFR § 1502.15).</p>	<p><i>Area of Potential Effects (APE)</i> The geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking (36 CFR § 800.16(d)).</p>
<p><i>Significance</i> Used to describe the level of impact a proposed action may have. In considering whether the effects of the proposed action are significant, agencies shall analyze the potentially affected environment and degree of the effects of the action (40 CFR § 1501.3(b)).</p>	<p><i>Significant</i> Used to describe the historic resources that have certain character-defining features that make it historically significant and therefore eligible for listing in the NRHP with the requisite integrity. See NRHP eligibility criteria (36 CFR § 60.4).</p>



**Table 3-34. NEPA and NHPA Terms and Definitions  
(continued)**

<b>NEPA Term and Definition</b>	<b>NHPA Term and Definition</b>
<p><i>Significant Effect or Impact</i> See Significance above.</p>	<p><i>Adverse Effect</i> Alteration to the characteristic of a historic property that qualify it for inclusion in the NRHP in a manner that would diminish its integrity (36 CFR § 800.5(a)(1)).</p>
<p><i>Public Involvement</i> Agencies shall provide notice of NEPA-related public hearings or meetings and the availability of environmental documents. They shall solicit information and comments from the public and make EISs and their supporting documentation available subject to the Freedom of Information Act (40 CFR § 1506.6).</p>	<p><i>Consultation</i> The process of seeking, discussing, and considering the views of other participants, and, where feasible, seeking agreement with them (36 CFR § 800.16(f)). Agencies are required to consult with certain parties (see below) and give the public an opportunity to comment.</p>
<p><i>Stakeholders</i> The term “stakeholder” is used to refer to impacted entities, including members of the public, who participate in some part of the NEPA process.</p>	<p><i>Consulting Parties</i> Parties that have consultation roles in the Section 106 process, including SHPOs; THPOs; Indian Tribes; Native Hawaiian organizations; local governments; applicants for federal assistance, permit, licenses, and other approvals; the ACHP; and other individuals and organizations with a demonstrated interested in the undertaking or the affected historic properties (36 CFR § 800.2(c)).</p>
<p><i>Cooperating Agencies</i> Any federal agency other than a lead agency which has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposal (or a reasonable alternative) for legislation or other major federal action significantly affecting the quality of the human environment. A state, Tribal, or local agency of similar qualifications may by agreement with the lead agency become a Cooperating Agency (40 CFR § 1508.1(e)).</p>	<p><i>Consulting Parties</i> See Consulting Parties above.</p>
<p><i>Mitigation</i> Measures that avoid, minimize, or compensate for effects caused by a proposed action or alternatives as described in an environmental document or ROD and that have a nexus to those effects. While NEPA requires consideration of mitigation, it does not mandate the form or adoption of any mitigation. Mitigation includes avoiding the impact; minimizing impacts by limiting the action and its implementation; rectify the impact by repairing, rehabilitating, or restoring the affected environment; reducing or eliminating the impact over time by preservation and maintenance; and compensating for the impact by replacing or providing substitute resources or environments (40 CFR § 1508.1(s)).</p>	<p><i>Mitigation</i> A measure to resolve specific adverse effects to identified historic property or properties by offsetting such effects. A nexus is required between the mitigation measure(s) and the adverse effects to historic properties.</p>
<p><i>Effects/Impacts</i> Effects and impacts are synonymous terms under NEPA. Changes to the human environment from the proposed action or alternatives that are reasonably foreseeable and include direct, indirect, and cumulative effects (40 CFR § 1508.1(g)).</p>	<p><i>Effects</i> An “effect” means alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the NRHP (36 CFR § 800.16(i)). Adverse effects are described above and may include direct, indirect, or cumulative effects.</p>

**Table 3-34. NEPA and NHPA Terms and Definitions  
(continued)**

<b>NEPA Term and Definition</b>	<b>NHPA Term and Definition</b>
<p><i>Cumulative Effects</i></p> <p>Effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable future actions (RFFAs) regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR § 1508.1(g)(3)). An individual action may not have much effect, but it may be part of a pattern of actions whose combined effects on a resource are significant.</p>	<p><i>Cumulative Effects</i></p> <p>Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance, or be cumulative (36 CFR § 800.5(a)(1)). While Section 106 regulations do not define “cumulative effects,” the CEQ regulation definition of “cumulative impact” is analogous and instructive.</p>
<p><i>Indirect Effects</i></p> <p>Reasonably foreseeable effects that are caused by the action and occur later in time or are farther removed in distance from the proposed action (40 CFR § 1508.1(g)(2)) These are often referred to as “downstream” impacts, or future impacts.</p>	<p><i>Indirect Effects</i></p> <p>Indirect effects may change the character of the property’s use or physical features within the property’s setting that contribute to its historic significance; are often audible and/or atmospheric.</p>
<p><i>Direct Effects</i></p> <p>An effect that occurs as a result of the action in the same place and at the same time as the action. Direct effects include actual changes to cultural or historic resources (40 CFR § 1508.1(g)(1)).</p>	<p><i>Direct Effects</i></p> <p>A direct effect to a historic property would include demolition of a historic building, major disturbance of an archaeological site, visual effects and viewshed intrusions, or any other actions that occur to the property itself.</p>

*Table Acronym(s):* ACHP – Advisory Council on Historic Preservation; APE – Area of Potential Effects (APE); CEQ – Council on Environmental Quality; CFR – Code of Federal Regulations; EIS – Environmental Impact Statement; NEPA – National Historic Preservation Act; NHPA – National Historic Preservation Act; NRHP – National Register of Historic Places; RFFA - Reasonably Foreseeable Future Actions; ROD – Record of Decision; SHPO – State Historic Preservation office; THPO – Tribal Historic Preservation Office

*Table Note(s):* Table is based on Attachment A: Definitions and Standards from the 2013 NEPA and NHPA: *A Handbook for Integrating NEPA and Section 106, by the CEQ Executive Office of the President and the ACHP.* The NEPA definitions have been updated to reflect the CEQ Revised Regulations (Revised 85 FR 43304) (September 14, 2020).

**Compliance with 36 CFR 800.8 Procedures (NEPA Substitution)**

The granting of a ROW by a federal agency is an undertaking subject to compliance with Section 106. The BLM has used the substitution approach to comply with Section 106 for the GLWP undertaking (referred to in this Final EIS/Proposed RMPA as “undertaking” or “GLWP”).

The following section meets the standards set forth in 36 CFR § 800.8(c)(1) and is organized to present the information required by the Section 106 process: Initiation of the Undertaking, Identification of Historic Properties, Assessment of Effects, and Measures to Avoid, Minimize, or Mitigate Adverse Effects. The BLM is using Attachment C: Checklist for Substitution, included in NEPA and NHPA: A Handbook for Integrating NEPA and Section 106, developed by the CEQ, Executive Office of the President, and the ACHP (March 2013) to guide use of the NEPA substitution process. Substitution does not relieve an agency of its Section 106 responsibilities to resolve adverse effects or impacts to historic properties through consultation. Ongoing consultation with the Nevada SHPO, Tribes, and other consulting parties will determine if these treatments are adequate for resolving adverse effects of this undertaking on historic properties.

**Initiation of the Undertaking**

**Notification (36 CFR 800.8(c))**

The BLM sent notification of its intent to use the NEPA substitution process for the GLWP to the Nevada SHPO, THPOs, ACHP and Native American Tribes in May 2021 and February 2022 (Appendix V). These letters included notification of the BLM’s election to use the NEPA substitution process, invited recipients

to participate as consulting parties and Cooperating Agencies in the NHPA and NEPA processes and provided information about the initial APE. The BLM has engaged and continues to engage in Section 106 consultation, coordination with Native American Tribes, and government-to-government consultation with federally recognized Native American Tribes. Refer to Chapter 5. Consultation and Coordination for more information on government-to-government consultation and copies of the Section 106 consultation letters and meeting materials are provided in Appendix V. The Walker River Paiute Tribe elected to engage as both a consulting party under NHPA and a Cooperating Agency under NEPA. Additionally, the BLM, ACHP, and SHPO met in July 2022 to discuss the NEPA substitution process and procedural requirements.

**Identify Consulting Parties (36 CFR 800.8(c)(1)(i))**

Under Section 106 of the NHPA, parties entitled to participate in consultation with the lead federal agency include SHPO and/or THPO, ACHP, Native American Tribes who might attach religious and cultural significance to historic properties in the APE, certified local governments, project proponents, and individuals and organizations with a demonstrated interest in the undertaking, such as historical societies, property owners, and non-profit organizations. The BLM invited the Nevada SHPO, THPOs, ACHP, Native American Tribes, and other parties to consult on Section 106 under 36 CFR 800.3(f) and/or to participate as a Cooperating Agency under NEPA in a letter dated May 2021 (Table 3-35). In the letter to the Nevada SHPO, the BLM asked for assistance in identifying other consulting parties. The BLM also requested assistance in identifying other consulting parties at a consulting parties meeting in December 2021, but no additional consulting parties were identified at that time.

The BLM shared the GLWP Scoping Report with the consulting parties in July 2022 and Nevada SHPO provided a list of 35 additional potential consulting parties. Input from NPS during the NEPA scoping process identified 16 more Tribes who might attach religious and cultural significance to historic properties in the APE. These Tribes were sent a notification and invitation to participate in government-to-government consultation in February 2022.

The Nevada SHPO, ACHP, Moapa Band of Paiute Indians, Las Vegas Paiute Tribe, Walker River Paiute Tribe, Duckwater Shoshone Tribe, Reno-Sparks Indian Colony, Timbisha Shoshone Tribe, Kaibab Band of Paiute Indians, Hopi Tribe, Washoe Tribe of Nevada and California, and the Oregon-California Trail Association responded that they would like to be consulted for the GLWP under Section 106. The San Juan Southern Paiute Tribe responded that they prefer not to participate in the early planning stages of the undertaking, but the BLM will continue to consult with them. The Proponent is also a consulting party. Table 3-35 identifies current consulting parties under Section 106 and Appendix V includes Section 106 consultation correspondence. The undertaking may affect lands administered by the Timbisha Shoshone Tribe, Las Vegas Paiute Tribe, and the Walker River Paiute Tribe.

**Table 3-35. Section 106 Consulting Parties**

<b>Name</b>	<b>Type</b>
Advisory Council on Historic Preservation	Federal
National Park Service – TUSK	Federal
National Park Service – National Trails Office	Federal
Bureau of Indian Affairs	Federal
Department of Defense	Federal
Department of Energy	Federal
US Fish and Wildlife Service	Federal
Big Pine Paiute Tribe of the Owens Valley	Tribe
Bishop Paiute Tribe	Tribe
Bridgeport Indian Colony	Tribe
Burns Paiute Tribe	Tribe
Chemehuevi Indian Tribe	Tribe
Colorado River Indian Tribes	Tribe
Confederated Tribes of Warm Springs	Tribe
Duckwater Shoshone Tribe	Tribe
Fort Independence Indian Community	Tribe
Fort McDermitt Paiute and Shoshone Tribes	Tribe
Fort Mojave Indian Tribe	Tribe
Havasupai Tribe	Tribe
Hopi Tribe	Tribe
Hualapai Indian Tribe	Tribe
Kaibab Band of Paiute Indians	Tribe
Las Vegas Paiute Tribe	Tribe
Lone Pine Paiute Shoshone Tribe	Tribe
Lovelock Paiute Tribe	Tribe
Moapa Band of Paiute Indians	Tribe
Pahrump Paiute Tribe <sup>a</sup>	Tribe
Paiute Indian Tribe of Utah	Tribe
Fallon Paiute-Shoshone Tribe	Tribe
Pyramid Lake Paiute Tribe	Tribe
Reno-Sparks Indian Colony	Tribe
San Juan Southern Paiute Tribe of Arizona	Tribe
Shoshone-Paiute Tribes of the Duck Valley Indian Reservation	Tribe
Summit Lake Paiute Tribe	Tribe
Timbisha Shoshone Tribe	Tribe
Twenty-Nine Palms Band of Mission Indians	Tribe
Utu Utu Gwaitu Paiute Tribe	Tribe
Walker River Paiute Tribe (and THPO)	Tribe
Washoe Tribe of Nevada and California	Tribe
Winnemucca Indian Colony	Tribe
Yerington Paiute Tribe	Tribe
Yomba Shoshone Tribe	Tribe
Nevada State Historic Preservation Office	State Agency
Nevada Division of Parks	State Agency
Comstock Historic District Commission	State Agency
National Pony Express Association	Organization

**Table 3-35. Section 106 Consulting Parties  
(continued)**

Name	Type
Old Spanish Trail Association	Organization
Oregon-California Trail Association	Organization
NV Energy	Proponent

*Table Acronym(s):* NV – Nevada; THPO – Tribal Historic Preservation Office; TUSK - Tule Springs Fossil Beds National Monument

*Table Note(s):* \*The Pahrump Paiute Tribe is not federally recognized but was invited to participate in Section 106 consultation.

## **Identification of Historic Properties**

### **Identify Historic Properties and Assess Effects (36 CFR 800.8(c)(1)(ii))**

#### ***Description of the Area of Potential Effects (APE)***

Pursuant to 36 CFR 800.4, the BLM defined the initial limits for direct effects and visual effects of the GLWP APE and included the description of the APEs as part of the notification and consultation letter sent to invited consulting parties. The BLM held consulting party meetings in December 2021 and March 2022 to discuss several topics, including the development of the APEs, the BLM’s strategy for identification of historic properties and assessment of effects, ideas, and input on treatment of adverse effects to historic properties, public involvement opportunities, and next steps in the NEPA substitution process. The March 2022 meeting also provided a status of the NEPA effort and discussed ways to participate as Cooperating Agencies. Meeting material for these two meetings is included in Appendix V. Further discussion regarding the APEs for the GLWP is found in Section 3.6.4 Analysis Area and Methodology.

#### ***Results of the Class I Cultural Resources Inventory***

The results of the Class I inventory (cultural resource background literature research) identified data gaps, areas needing additional data collection or pedestrian inventory, and areas requiring measures to avoid potential adverse effects to historic properties. The Class I inventory yielded approximately 2,500 known cultural resource sites within the Visual Area of Potential Effects (VAPE), 383 of which are located within the cultural resources Direct Area of Potential Effects (DAPE). Known cultural resources include indigenous lithic scatters and quarries, artifact scatters, rock shelters, and sites with rock writing. Historic resources include railroads, roads and trails, artifact scatters, townsites, and mines and mining exploration features. Listed historic properties include the Sheep Mountain Range Archaeological District, Old Spanish Trail, Corn Creek Spring, Tule Springs Ranch/Floyd Lamb Park, Tule Springs Archaeological Site, Lagomarsino Petroglyph Site, Fort Churchill (consisting of three separate resources, including Fort Churchill State Historic Park, Fort Churchill National Historic Landmark, Fort Churchill historic property), Buckland Station, and Stockton Well Station. The Stockton Well Station is listed on the State Register for Historic Places, but not the NRHP. The Mercury Historic District, while not listed in the NRHP, has been determined eligible for listing in the NRHP with Nevada SHPO concurrence.

#### ***Results of the Class III Cultural Resources Inventory (Pedestrian Survey)***

The Class III cultural resources inventory (systematic pedestrian survey) and a pre-field records search resulted in the identification of numerous archaeological and historical sites located within the DAPE. During the Class III inventory of the DAPE, all previously recorded sites and historically mapped features were relocated, if possible. A total of 1,761 sites, structures, and districts were documented in the Class III inventory area. Documented cultural resources date to the Paleoarchaic, Archaic, Late Prehistoric, and Historic periods. Resource types include lithic scatters, rockshelters, habitations, indigenous stacked rock features, hunting blinds, cans and/or glass scatters, temporary camps, ranches, homesteads, mining and

prospecting-related features, military facilities, roads, airstrips, canals, transmission lines, and railroads. Lithic scatters are the most abundant resources and are generally associated with lithic procurement, tool production, and/or subsistence-processing activities of mobile hunter-gatherers during all periods of human occupation. Recent historical sites reflect early non-indigenous exploration and settlement, transportation, communication, mining, the ranching and agriculture industries, military, and informal refuse.

The BLM has consulted with multiple Native American Tribes (refer to Table 3-35) regarding identifying cultural resources including traditional cultural properties (TCPs). Research and consultation efforts to date have not resulted in the identification of TCPs in the APEs. The BLM's identification effort can be considered reasonable and in good faith when it has appropriately taken into account the factors specified in 36 CFR § 800.4(b)(1): past planning, research and studies, the magnitude and nature of the undertaking and the degree of federal involvement, the nature and extent of potential effects on historic properties, and the likely nature and location of historic properties within the APE.

### **Assess Effects to Historic Properties**

#### **Consult Regarding the Effects of the Undertaking (36 CFR 800.8(c)(1)(iii))**

Consulting parties were invited to attend Cooperating Agency meetings throughout the development of the NEPA documents. There were 14 Cooperating Agency meetings for the GLWP between May 2021 March 2024. Cooperating Agencies and consulting parties were invited to review the Administrative Draft EIS/RMPA in December 2022. The BLM incorporated and/or addressed all substantive comments received. Although the Nevada SHPO declined to participate as a Cooperating Agency, the BLM notified the Nevada SHPO of the NEPA document availability, changes to the schedule, and anticipated next steps via email.

In April 2023, the BLM sent consultation letters to Tribes and invited them to a meeting to discuss both NHPA and NEPA updates for the GLWP. In May 2023, the BLM sent an invitation letter to consulting parties requesting participation in a Section 106 consulting party meeting. The meeting was held in May 2023 and discussions included how BLM was complying with 36 CFR 800.8(c); identification of consulting parties; strategies to identify historic properties; preliminary inventory results, NRHP eligibility, adverse effect determinations; and preliminary treatment measures to resolve adverse effects. The BLM also held a government-to-government meeting in May 2023 with Native American Tribes and discussed the EIS schedule, resources analyzed in the Final EIS/Proposed RMPA, the transmission line route alternatives, and previous concerns noted by Tribes. Refer to Table 5-1 for a list of Tribes in attendance at the government-to-government meetings. During both meetings, the BLM provided information on the public comment meetings for the Draft EIS/RMPA and how to structure effective comments on the document, and next steps in the NEPA process.

Over a 90-day period from May to August 2023, the BLM conducted NHPA consultation on identification of historic properties, preliminary determinations of effect, and preliminary treatment methods to resolve adverse effects to historic properties for the undertaking. The consulting parties were provided with copies of the Class I and Class III inventory reports, a visual effects assessment report, and the Draft EIS/RMPA. These documents included the results of investigations through 2022. The 90-day consultation period coincided with the public comment period for the Draft EIS/RMPA. The BLM received no objections on the Draft EIS/RMPA.

In January 2024, BLM held another government-to-government meeting with Native American Tribes and discussed the NEPA and NHPA schedules, changes since the Draft EIS/RMPA, potential effects to cultural resources, and proposed treatment options.

In February and March 2024, the BLM held Section 106 coordination meetings with consulting parties. The February meeting occurred just prior to the start of a 30-day Section 106 consultation period. Topics discussed at the meeting included NEPA updates and changes since the Draft EIS/RMPA, changes since the last Section 106 consultation—including the addition of Beatty Alternative L—additional Class III inventory and visual effects analysis results, preliminary determinations of effect, and the draft historic properties treatment plan (HPTP). The March 2024 meeting focused on the details of the HPTP. Over a 30-day period from February to March 2024, the BLM conducted Section 106 consultation on work completed since the previous consultation, including additional identification of historic properties, preliminary determinations of effect, and treatments to resolve adverse effects. The consulting parties were provided with updated Class III inventory and visual effects assessment reports, forms for newly recorded sites, and an HPTP.

### **Determination of Effect**

The procedure for assessing adverse effects under Section 106 is described at 36 CFR 800.5. The regulations state that:

... an adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.

The BLM has made a preliminary determination of adverse effect to cultural resources based on the direct physical and visual changes the GLWP would introduce. The NEPA definition of impacts to any resource is provided in 40 CFR 1508.1(g). For the purposes of this analysis, NEPA considers impacts to resources regardless of the site eligibility.

Effects could be the result of ground disturbances; visual, audible, or atmospheric disturbances; increased erosion; or changes in public access, traffic patterns, or land use. Effects could also occur if the GLWP restricts Tribal access to known historic properties that are unevaluated, eligible, or listed in the NRHP and/or to TCPs or sacred sites. The HPTP, which includes a list of the specific historic properties that may be adversely affected by the GLWP and proposed treatment measures, is provided in Appendix K.

### **Public Involvement (36 CFR 800.8(c)(1)(iv))**

The BLM understands that the views of the public are essential to an informed federal decision making in the Section 106 and NEPA processes. The Section 106 public involvement process is being met by the EIS public involvement requirements. In communities throughout the GLWP area, the BLM held 12 in-person and/or virtual public input workshops from June 2021 to February 2022, 4 in-person public scoping meetings in May 2022, and 7 public meetings during the public comment period on the Draft EIS/RMPA. Material for the public meetings were provided on the BLM National NEPA Register website for public accessibility and to reach members of the public who may have an interest in the outcome of this undertaking.

### **Resolve Adverse Effects**

#### **Development of Alternatives and Treatment Measures (36 CFR 800.8(c)(1)(v))**

The BLM has worked with the GLWP consulting parties to address concerns, develop alternatives, and identify measures to avoid, minimize, or mitigate adverse effects of the undertaking. In December 2021, the BLM consulted on the strategy for identification of historic properties and assessment of effects and requested ideas and input on treatment of adverse effects to historic properties from the consulting

parties. In March 2022, the BLM consulted with recently identified consulting parties. Discussions included the BLM's strategy for historic property identification and effects assessment, proposed treatment of adverse effects to historic properties, and GLWP alternatives. The BLM invited interested Native American Tribes to the August 2022 Cooperating Agency meeting to discuss the proposed alternatives for the GLWP. The BLM provided information regarding the process for commenting on the Administrative Draft EIS/RMPA to the Native American Tribal members in attendance at the September 2022 Cooperating Agency meeting.

Consultation and coordination with the Duckwater Shoshone Tribe identified sites of Tribal significance in the Beatty area. As a result, Beatty Transmission Alternatives K and L were developed to avoid adverse effects to Native American religious and cultural significant sites.

#### ***Treatment Measures***

The HPTP details site types, NRHP-eligibility recommendations, associated research questions guiding mitigation, and treatment measures to resolve adverse effects (Appendix K). As part of complying with 36 CFR 800.8, the BLM must consult on proposed measures that might avoid, minimize, and mitigate impacts. The BLM has consulted with consulting parties on the treatments in the HPTP. The BLM would make a binding commitment to implement the treatment methods in the ROD.

### **3.6.3 Additional Native American Coordination**

#### **3.6.3.1 Tribal Monitors**

Several Native American Tribes requested Tribal monitors for the archaeological fieldwork in certain areas. The Walker River Paiute Tribe requested monitors on their lands and all lands in Mineral County. The Duckwater Shoshone Tribe requested monitors between Big Smoky Valley and the Amargosa Desert. The Moapa Band of Paiutes requested monitors east of US 160. The Timbisha Shoshone Tribe requested monitors on their land. Tribal monitors were present for all archaeological fieldwork conducted on Tribal lands and for as much of the archaeological fieldwork in the identified areas of interest as possible. The presence of Tribal monitors in off-sovereign nation locations was dependent on the availability of Tribal monitors. Monitors were provided daily logs and forms to provide their input and notes for the GLWP. The perspectives of Tribal monitors were considered when evaluating cultural resources for NRHP eligibility. A total of 10 different Tribal monitors participated in the fieldwork efforts within the identified areas of interest.

The Moapa Band of Paiute Indians and the Timbisha Shoshone, Duckwater Shoshone, and Walker River Paiute Tribes identified areas of interest along the GLWP and requested the presence of Tribal monitors in those areas. Tribal monitors and/or representatives from the tribes accompanied field crews during the majority of the survey efforts, based on their availability. On average, there was one Tribal monitor on each field crew. Each field crew consisted of up to four professional archaeologists.

#### **3.6.3.2 Tribal Site Visits**

The BLM hosted several visits to archaeological sites with Native American Tribes. The Duckwater Shoshone Tribe expressed concerns to the BLM regarding Tribally important sites and features, specifically stacked rock features, encountered within the BMDO during the Class III cultural resources survey. Several sites containing stacked rock features had been documented and multiple field visits were conducted by the BLM and Tribal members. A member of the Duckwater Shoshone Tribe and the BLM conducted a field visit to multiple sites located southwest of Goldfield in October 2021. The group visited three sites



containing stacked rock features and one site containing rock writing. The Duckwater Shoshone Tribal representative assisted in interpretation and eligibility determinations and requested avoiding these sites. Representatives of the Duckwater Shoshone Tribe, the Timbisha Shoshone Tribe, and the BLM conducted a field visit in January 2022 near Beatty to two sites with rock features. The Tribal representatives recommended avoiding these two sites.

In April 2022, representatives from the BLM, Timbisha Shoshone Tribe and Duckwater Shoshone Tribe visited additional sites near Beatty and Scotty's Junction. The Timbisha Shoshone Tribal representatives identified areas of significance to the Tribe and relayed that they would only support an alternative associated with Scotty's Junction that results in the least ground disturbance. Another site visit was completed the following year (April 2023) near Beatty with representatives from the Duckwater Shoshone Tribe and the Timbisha Shoshone Tribe. The purpose of the April 2023 field visit was to look at two stacked rock feature sites along the Beatty Transmission Alternative K alignment and discuss potential treatment methods for these sites.

During the public comment period on the Draft EIS/RMPA, the BLM received additional alternative recommendations for evaluation. As a result, visits were conducted in November 2023 and March 2024 to another Beatty area alternative (Beatty Transmission Alternative L) that included representatives from the Timbisha Shoshone Tribe and Duckwater Shoshone Tribe and the BLM. Most of Beatty Transmission Alternative L route had been previously surveyed for projects other than the GLWP; these surveys along the newly proposed transmission alignment lacked Tribal monitor participation. The purpose of the November 2023 trip was to revisit the previously documented sites to determine whether the existing survey coverage adequately accounted for ceremonial features important to local Tribes. During the visit, multiple undocumented indigenous stacked rock features were observed within and between previously documented sites. The BLM decided to conduct a reconnaissance level survey (Class II) with Tribal monitors the area within the previously surveyed areas of Beatty Transmission Alternative L likely to or observed to contain indigenous stacked rock features. The reconnaissance level survey would also revisit all previously documented sites within this area. The Tribal representatives and the BLM agreed that the portion of Beatty Transmission Alternative L alignment deemed unlikely to contain indigenous stacked rock features did not need resurvey. The results of the reconnaissance level survey were included in the revised Class III report. The March 2024 site visit focused on the sites identified in the reconnaissance level survey. There are existing mining disturbances to one of the sites of concern. The Tribal representatives agreed that could generally follow the disturbed areas to minimize effects to the site.

### **3.6.3.3 Other Tribal Coordination**

Coordination with the Native American Tribes has also occurred outside of formal consultation letters, meetings, and site visits. Telephone and email conversations have occurred with the Duckwater Shoshone Tribe, Reno-Sparks Indian Colony, Yomba Tribe, Timbisha Shoshone Tribe, Walker River Paiute Tribe, Chemehuevi Indian Tribe, Moapa Band of Paiute Indians, and the Washoe Tribe of Nevada and California. These communications were focused on providing additional information regarding Tribal monitors, concerns with the various transmission alternatives, questions about the overall project, and opportunities for economic benefits to the respective Tribes. Additional Tribe coordination and government-to-government consultation is discussed in Chapter 5. Consultation and Coordination.

### 3.6.4 Analysis Area and Methodology

#### Analysis Area

The analysis area for cultural resources consists of areas where cultural resources may be directly or indirectly affected. The cultural resources analysis area is the APEs. The BLM defined the APEs in consultation with the Nevada SHPO, THPOs, ACHP, and other consulting parties including Native American Tribes. The APEs encompass numerous cultural resources and historic properties.

The APEs for cultural resources are divided into two categories: the DAPE and the VAPE. The DAPE includes all areas that may be subject to ground-disturbing activities plus a 98-foot buffer. The approximately 82,197-acre DAPE includes the temporary ROWs for the Action Alternatives; proposed distribution lines; and the footprints for the substations and alternative substations, microwave radio facilities, amplifier sites, access roads slated for improvement or new construction, and construction/material yards, plus a 98-foot buffer around all of these areas as stipulated by the BLM (Table 3-36).

The VAPE, for the purposes of compliance with Section 106, is a much larger area and is meant to include areas that may have visual effects, temporary auditory, atmospheric (dust), and vibrations during construction. It should be noted that visual effects are considered direct effects (rather than indirect effects), but they would not result in physical disturbance to historic properties. The VAPE is derived from the BLM’s VRM program for assessing and managing the scenic value of the landscape (BLM 1984) and from BLM guidance on developing VAPEs for large infrastructure projects (Pay et al. 2020). The VAPE is defined as the foreground (FG) (zero to three miles) visual distance zone from the transmission line centerline. The BLM Nevada’s research on visual effects to historic properties found that visual changes introduced by lattice or monopole 500-kV transmission lines are greatly reduced after approximately 3 miles; 230-kV lattice or monopole transmission lines after approximately 1.5 miles; and wooden monopole transmission lines after 0.5 miles (Pay et al. 2020). Following (Pay et al. 2020), the VAPE is an 3-mile-wide radius around the centerline of the Action Alternatives for a total 6-mile-wide corridor. Additionally, the VAPE includes a 0.5-mile-wide radius around the distribution lines centerlines (for a total 1-mile-wide corridor) and substations. The VAPE encompasses approximately 1,725,733 acres. Beyond these distances, the details, texture, and form are no longer as apparent and, in some cases, atmospheric conditions can further reduce visibility (BLM 1984; Pay et al. 2020). Within the VAPE, archaeological sites that are eligible only for their potential to yield important information generally would not be affected by changes to their visual setting. Setting might be an important element of the historical values of other types of resources such as historic trails, roads, buildings, and structures. The various GLWP components and their associated DAPE and VAPE is presented in Table 3-36.

**Table 3-36. GLWP Components and Associated DAPE and VAPE**

<b>Component</b>	<b>DAPE</b>	<b>VAPE</b>
525-kV and 345-kV Transmission Line ROWs	600-foot temporary ROW (300-foot from centerline) plus 98-foot buffer	6-mile corridor (3 miles on either side of centerline)
Distribution Lines	100-foot temporary ROW (50-foot from centerline) plus 98-foot buffer	1-mile corridor (0.5 miles on either side of centerline)
Substations	Disturbance footprint plus 98-foot buffer	0.5-mile buffer around disturbance footprint

**Table 3-36. GLWP Components and Associated DAPE and VAPE  
(continued)**

Component	DAPE	VAPE
Microwave radio facilities Amplifier sites Material/Construction yards Tensioning areas	Disturbance footprint plus 98-foot buffer	None
Access Roads slated for improvement or construction	100-foot temporary ROW (50-foot from centerline) plus 98 feet buffer	None

*Table Acronym(s):* DAPE – Direct Area of Potential Effects; GLWP – Greenlink West Transmission Project; kV – Kilovolt; ROW – Right-of-way; VAPE – Visual Area of Potential Effects

**Methodology**

All work was completed in accordance with the Secretary of the Interior’s Guidelines for Archaeology and Historic Preservation, the standards found within BLM Manual 8110, and the BLM Nevada State Office’s Guidelines and Standards for Archaeological Inventory (Sixth Edition). In order to fulfill the BLM’s obligations under Section 106 of the NHPA, the following tasks were completed:

- Class I cultural resources inventory and reports
- Class III cultural resources inventory and reports
- Preparation of measures to avoid, minimize, or mitigate adverse effects to historic properties

**Class I Cultural Resources Inventory**

The Class I cultural resources inventory, conducted prior to the Class III intensive inventory, identified numerous archaeological and historical sites within the APEs. Data sources for the research included the Nevada Cultural Resources Information System (NVCRIS) database; files from the BLM SNDO, CCDO, and TFO; historic General Land Office (GLO) and USGS maps; the NRHP database; and published and unpublished Tribal ethnographic overviews and TCP studies.

The Class I inventory also included a desktop analysis of potential visual effects to historic properties within the APEs. A visibility analysis was performed using ArcGIS Spatial Analyst to identify all areas that would be visible from the Action Alternatives out to a distance of approximately 3 miles and areas visible from the distribution lines and proposed new substations out to a distance of approximately 0.5 miles. The analysis identified where the GLWP would be visible if there were no vegetation or structures to screen the GLWP components (i.e., bare earth analysis). Only cultural resources visible from the GLWP components were considered. Cultural resources subject to this detailed analysis included only historic properties eligible for inclusion or listed in the NRHP under Criteria A, B, or C and retain integrity of setting, feeling, and association. Additionally, sites that were unevaluated for NRHP eligibility were reviewed to see if they potentially meet significance under Criteria A, B, or C and retaining integrity of setting, feeling, and association. If so, the sites were subject to detailed analysis. Resources meeting these criteria may be visually affected by the GLWP and were subjected to further visual analysis.

**Class III Cultural Resources Inventory**

A Class III cultural resources inventory was required for the DAPE of Action Alternatives carried forward into detailed analysis in this Final EIS/Proposed RMPA. Portions of the DAPE surveyed for cultural resources by a qualified professional in the last 20 years to Class III standards were not resurveyed. However, all previously recorded sites in those areas were revisited and updated as necessary. The Class III inventory included all federal and state lands but excluded all private lands. More details regarding inventory of private lands, measures to resolve adverse effects, and the associated Section 106

consultation can be found in the HPTP in Appendix K. For the purpose of characterizing the affected environment for private lands in this document, a GIS-based predictive model was used to determine the probability of the presence of cultural resources in the unsurveyed areas. Refer to Section 3.6.5.2 Identification of Resources for additional discussion regarding the predictive model.

The DAPE was inventoried by qualified and permitted field supervisors. Crews walked one 98-foot transect on both sides of road corridors and used 98-foot transect spacing for all remaining areas. Cultural resources were identified and documented according to BLM standards.

Cultural resources were evaluated for eligibility for listing in the NRHP within an appropriate historic context using the four criteria of significance and the seven aspects of integrity. In order to be eligible for listing in the NRHP, a cultural resource must possess both historic significance and sufficient integrity to convey that significance (36 CFR 60.4). Significance must be demonstrated under one or more of the following criteria: A) associated with events that have made a significant contribution to the broad patterns of our history; B) associated with the lives of persons significant in our past; C) embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or D) have yielded, or may likely to yield, information important in prehistory or history. Cultural resources that are significant under the criteria must also retain sufficient integrity to be eligible for listing in the NRHP. Aspects of integrity include location, design, setting, materials, workmanship, feeling, and association. For the purposes of this analysis, cultural resources of unevaluated NRHP-eligibility were treated as if they were eligible for inclusion in the NRHP.

#### **Visual Effects Analysis**

The visual effects analysis included an evaluation of historic properties in the VAPE that are eligible or listed under Criteria A, B, or C and retain integrity of setting, feeling, and association and where the GLWP components would be visible from the property. These historic properties were evaluated in the field and photographed from within the historic property or at the edge of the site boundary. The photographs document the visibility conditions of the GLWP component from the historic property. A desktop evaluation analyzed historic properties that were not readily accessible. The visual contrast introduced by the GLWP components, visibility conditions, and scale and spatial relationship of the Action Alternatives in relation to the sensitive viewing platforms (SVPs) were documented using forms based on the BLM Visual Resource Contrast Rating process (BLM 1986b). The visual analysis of historic properties was completed based on the results of the field observation and visibility analysis at readily accessible sites. The visibility conditions of the GLWP from each historic property was evaluated using a visibility rating system developed by Argonne National Laboratory (ANL). The ANL visibility level system is comprised of six classifications scored on the visibility of a transmission facility within its landscape setting, and for the weather and lighting conditions at the time of the observation (Sullivan et al. 2014).

More details regarding investigation methods, results, and recommendations can be found in a series of technical reports available to the public through the Nevada SHPO or BLM Nevada State Office. Table 3-37 describes the documents containing this detailed information.

**Table 3-37. Reports with Detailed GLWP Cultural Resources Data**

Report Type	Citation(s)	Description
Class I Cultural Resources Inventory Reports	(LaValley, Ermish, et al. 2023; LaValley, Hoefler, et al. 2023a, 2023b)	Environmental setting, culture history, prior research summary, research design, tables of previous investigations and previously recorded sites
Class III Cultural Resources Inventory Reports	(Schwartz, Ermish, Lloyd, Ligman, et al. 2024; Schwartz, Ermish, Lloyd, Sainz, Butero, et al. 2024; Schwartz, Ermish, Lloyd, Sainz, Morris-Larsen, et al. 2024)	Results of pedestrian inventory of the DAPE
Visual Effects Analysis Report	(LaValley et al. 2024)	Results of visual effects analysis in the VAPE
Historic Properties Treatment Plan	(Button et al. 2024)	Plan to avoid, minimize, or mitigate adverse effects. Includes research design, research methods, site-specific work plans, plan for private lands and unsurveyed areas, archaeological and Tribal monitoring plan, and reporting and consultation plan

Table Acronym(s): DAPE – Direct Area of Potential Effects; GLWP – Greenlink West Transmission Project; VAPE – Visual Area of Potential Effects

### 3.6.5 Affected Environment

#### 3.6.5.1 Cultural Setting

Researchers have generally divided the major periods of western Great Basin prehistory based on changes in the adaptive strategies utilized by humans in response to climatic variations (Elston 1986). While exact dates are debated, the time periods are generally outlined as: Pre-Archaic (or Paleoarchaic; 11,000 to 6,500 BC); Archaic (6,000 BC to AD 1,400), including the Early, Middle, and Late Archaic subdivisions; Late Prehistoric (AD 1,400 to Historic Contact); and Historic (AD 1750 to 1967). In addition to a summary of these periods, a brief ethnographic and ethnohistoric section is also provided concerning the *Nuwuvi* (Southern Paiute), *Newe* (Western Shoshone), *Numu* (Northern Paiute), and *Wa She Shu* (Washoe) on whose traditional lands the analysis area is located.

#### **Paleoarchaic (10,700 to 6,500 BC)**

In general, the archaeological record indicates that the first major human occupation of the Americas occurred near the end of the Pleistocene. Several lines of evidence—genomic, paleoecological, and archaeological—suggest that the Americas were first colonized between 16,000 and 13,000 BC (Erlandson 2013) and that most of North America was occupied by 11,000 BC (Miller et al. 2014). Based on their large stemmed and fluted points, Paleoarchaic hunter-gatherers were once characterized as small populations of highly mobile foragers that focused on hunting Pleistocene megafauna. In addition to hunting, Paleoindian/Paleoarchaic groups in the Great Basin also pursued a broad subsistence strategy consisting of waterfowl, lagomorphs, and plant foods (Beck and Jones 1997).

Sites associated with the Paleoarchaic period within the Great Basin are commonly found near pluvial lakes, marshes, or deltas; on Pleistocene river or stream terraces; and on old, elevated surfaces on valley margins (Elston 1982; Oviatt et al. 2003; Schmitt et al. 2007). In North America, the shift to a warmer arid climate marked the Late Pleistocene/Early Holocene transition. In the Great Basin, many shallow lakes and associated marshes present during the Pleistocene began to desiccate. By about 7,500 years ago, the era of bio-productivity associated with shallow lakes and marshes was largely over (Grayson 2011). The

Archaic period (6,500 BC to AD 1,400)—further divided into Early, Middle, and Late—marks when humans adapted to the changing climate and resources.

### **Early Archaic (6,500 to 3,000 BC)**

By the beginning of the Early Archaic period, the loss of shallow-water habitats and associated decline in high-ranked resources led to the widespread inclusion of previously ignored lower-ranked resources. These new resources included smaller-sized mammals and a variety of seeds. Greater dependence on the latter is reflected by an increase in basketry and groundstone artifacts (e.g., manos, metates) used for processing seeds and other plant resources (Grayson 2011; Rhode et al. 2006; Simms 2008). Projectiles manufactured as dart points including Large Side-notched and Pinto Series points (subsumed, along with Contracting Stem points in the Gatecliff series Thomas 1981) were common to the Early Archaic period. However, the larger Humboldt points (Hildebrandt et al. 2016) also appear during this time.

### **Middle Archaic (3,000 BC to AD 500)**

The warm, dry conditions of the Early Archaic period were followed by cooler and wetter climatic conditions conducive to the reestablishment of small glaciers and pluvial lakes. It is also during this period that Great Basin hunter-gatherers began to use uplands in earnest, perhaps due to shrinking lake-margin resources, increasing populations (Elston 1982), and enhanced conditions due to an improved moisture regime (Aikens and Madsen 1986). Larger mammals, especially sheep, appear to have been the preferred game choice in upland settings although deer, rabbit, and, occasionally, bison were taken (Aikens and Madsen 1986). During this period, some sites in the eastern Great Basin reflect a decrease in milling stones, wild seed food, birds, and smaller mammals in favor of higher ranked resources. In contrast, sites in the southwestern Great Basin demonstrate that groundstone tools became common and hunter-gatherers relied more on hard seeds. Toward the end of the Middle Archaic, hunter-gatherers in the eastern, and southern Great Basin began to incorporate some traits associated with farming societies in the southwest and Mexico (Madsen and Simms 1998). By the beginning of the Late Archaic period, some transitioned to horticulture. Temporally diagnostic artifacts common to Middle Archaic sites include Humboldt, Elko, Gypsum, and Pinto Series projectile points (but see Thomas 1981 regarding Pinto and Gatecliff Series points). Toward the end of the period and leading into the Late Archaic, smaller points (e.g., Eastgate, Rose Spring series) associated with the shift to bow-and-arrow technology enter the archaeological record.

### **Late Archaic (AD 500 to 1400)**

During the Late Archaic period, farming was adopted by many groups in the eastern Great Basin and Colorado Plateau, the closest being the Fremont. These groups typically had larger, more permanent settlements and allocated much of their time to growing corn, beans, and/or squash and also continued to hunt and gather. Their social, trade, and religious systems also appear to have been more well-developed. Distinctive features and artifacts include, among other things, semi-subterranean pit houses, ceramic pottery and figurines, ground and flaked stone tools, and basketry (Aikens and Madsen 1986; Marwitt 1986; Simms 2008). The Fremont Complex in particular reflects a range of material culture traits and strategies encompassing both more settled farming and mobile foraging.

Unlike the eastern and southern portions of the Great Basin, the central and western Great Basin did not experience an appearance or in situ development of more sedentary horticultural strategies. Few Fremont Complex traits are known in the vicinity of the analysis area. Instead, the Late Archaic in the western and central Great Basin was a continuation of the adaptive strategies established during earlier Archaic periods

(Elston 1982). There was intensification in pinyon harvesting/caching and occupation of high-elevation villages such as one found at Alta Toquima (Thomas 2020). Throughout the Archaic period and into the historic period, the regional archaeological record in the western Great Basin reflects variations in hunter-gatherer adaptations.

### **Late Prehistoric (AD 1400 to Historic Contact)**

The last phase of the Late Archaic (often referred to as the Late Prehistoric) is characterized by the appearance of outside populations in the Great Basin region. Bettinger and Baumhoff (1982) propose a "Numic expansion" theory that argues that Numic-language speakers moved from the Mojave Desert area into the Great Basin. This move may have been partially due to a severe drought in the Mojave Desert late in the prehistoric sequence (Sutton 1996). The arrival of the Numic speakers coincided with the disappearance of many Fremont-period elements along the present-day Utah-Nevada border but represented a continuum of Archaic lifeways in the remainder of Nevada (James 1981). Archaeological evidence of Numic population expansion includes small triangular arrow points (e.g., Desert Side-notched, Cottonwood Triangular) and brownware pottery, called Intermountain Brownware or Shoshonean Ware. By the time of contact with non-Indigenous cultures, the present ethnographically known Numic-speaking bands were well-established in the western Great Basin.

### **Ethnographic and Ethnohistoric**

The analysis area is spread across lands traditionally and currently occupied by *Nuwuvi* (Southern Paiute), *Newe* (Western Shoshone), *Numu* (Northern Paiute), and *Wa She Shu* (Washoe). Established geographical divisions between these groups and the bands within each are utilized for this discussion. However, these boundaries were often fluid and not all-encompassing of each group's territory. The *Nuwuvi* (Southern Paiute) lands include areas generally west and north of the Colorado River in Nevada, Utah, Arizona, and California—San Juan Southern Paiute is the exception and live east of the Colorado and south of the San Juan River (Inter-Tribal Council of Nevada [ITCN] 1976c). Traditional *Nuwuvi* lifestyle was tied to this land, as they were dependent on the earth, or *tu-weap*, for life. Many local bands were formed across this vast region, each with their own territory. There may have been at least 35 distinct bands around 1850. In southern Nevada, these included the Moapits, Tantibooits, Shebits, Pahrnagits, Parumpits Kwiengomits, Pegesits, Movweits, and Chemehuevis (Hebner 2010; ITCN 1976c). By 1934, only 15 Southern Paiute bands were recognized by the federal government, with only four bands—Moapa/Pahrnagit, Las Vegas, Pahrump, and Chemehuevi—recognized in southern Nevada (Hebner 2010).

The *Newe* (or Western Shoshone) territory traditionally covered a large swath of land from Death Valley, California, to the south up to Idaho and Utah in the north-northeast and including much of central Nevada (ITCN 1976a). *Newe* bands were flexible in membership and distribution. In central Nevada, the *No-ga'ie* near Duckwater and *Pi-at-tui'ab-be* in Big Smoky Valley were documented by Powell and Ingalls in 1873 as *Newe* bands with ties to south-central Nevada; however, *Newe* also resided in and around Beatty and Death Valley at this same time (Bengston 2003; ITCN 1976a). Julian Steward's work with Western Shoshone reported additional bands in Beatty (*Ogwe-pi*); the Belted Range; and Lida, Clayton, and Death valleys (Steward 1997). While occupation of the latter was reported to be sparse, there were a large number of winter villages near Beatty and within Oasis Valley due to the presence of springs and the Amargosa River.

The *Numa* (or Northern Paiute) traditionally occupied the western third of the Great Basin region stretching from the Owens Valley in California through Nevada and into southern Oregon and Idaho. (Bengston 2003; ITCN 1976b). The *Numa* language and traditions share many commonalities with the

*Newe* and *Nuwuvi* to the east but are distinct from the Washoe and California groups to the west. Similar to all Great Basin groups, the *Numa* territory was composed of many overlapping and spatially fluid homelands occupied by bands of varying size and composition. There were at least six distinct bands in the southern portions of *Numa* territory, including the Kootzagwae of Mono Lake, Pagwewae and Agiwae of Walker Lake and lands east, Taboosewae of Mason and Smith Valleys, Toewae of the Carson Sink, and Kooeyooewae of Pyramid Lake (ITCN 1976b; Johnson 1975; Stewart 1939).

The *Wa She Shu* (or Washoe) generally inhabited and continue to reside in the area along the eastern Sierra Front to the west, the Pine Nut and Virginia ranges to the east, Honey Lake to the north, and Sonora Pass to the south (ITCN 1976d). Early occupation of the region by the Washoe is supported ethnographically (ITCN 1976d) and oral traditions tell that the Washoe did not travel to this place, but have always been there (ITCN 1976d). Furthermore, linguistic studies show that the Washoe language is drastically distinct from that of their neighbors.

### **Historic**

Nevada's historic period began in the 1700s when Spanish explorers passed through present-day southern Nevada searching for a route to connect settlements in New Mexico with those in California. Exploration of central Nevada did not begin in earnest until 1826 when Spanish authorities opened the territory to fur trapping. The Spanish province of Alta California, which included present-day Utah and Nevada, belonged to Spain until 1822, then to Mexico, but was ceded to the US in 1848 at the end of the Mexican-American War. In 1849, the discovery of gold near Sutter's Mill, California, spurred westward migration. In 1849 alone, the California Trail saw as many as 25,000 travelers (McBride 2002). However, emigrants did not generally pass through the central portions of Nevada until the 1860s. Brigham Young, the head of The Church of Jesus Christ of Latter-Day Saints, envisioned a State of Deseret occupying much of the Great Basin and southern California. However, this did not come to fruition. When California was awarded statehood in 1850, Nevada remained part of the Utah Territory. Members of the Church continued to use the overland routes across Nevada to missions and communities in California, giving their name to one of the most important routes—the Mormon Trail.

The Comstock strike of 1859 changed perceptions of Nevada from a “pass through” country to a region of economic potential (McBride 2002; Wright 1877). Miners who initially failed to strike it rich in California came to the Comstock area near the Carson Valley to work the strike. Soon thereafter, the Reese River District of central Nevada began to attract interest. In 1864, Nevada was admitted to the Union as the 36<sup>th</sup> state. During the late nineteenth and early twentieth century, mining continued to develop throughout western Nevada, necessitating the growth of railroad networks in the region. The four major railroads in the area were the Tonopah & Goldfield Railroad, the Las Vegas & Tonopah Railroad, the Tonopah & Tidewater Railroad, and the Bullfrog Goldfield Railroad. Towns such as Yerington, Hawthorne, Sodaville, Luning, Mina, Candelaria, Tonopah, Goldfield, Rhyolite, Beatty, and Amargosa either already existed or cropped up along the railroads and were initially associated with mining and/or railroad stations. Many of these towns persisted through the mid-twentieth century and some remain inhabited today. As mining and railroad growth halted throughout the region during the mid-twentieth century, towns fostered and relied on other industries, such as agriculture; military infrastructure and training; temporary residency for divorce; recreation and tourism; gambling; and hospitality, all of which became major sources of economic growth for communities in western Nevada. Today, Nevada is home to a diverse collection of communities and cities, each with their own strengths and economic contributions to the region.



### **3.6.5.2 Identification of Resources**

The findings and recommendations reported represent final BLM NRHP determinations based on the result of Section 106 consultation. More information about the results of the Class III inventory can be found in a series of three technical inventory reports, one for each BLM district (Schwartz, Ermish, Lloyd, Ligman, et al. 2024; Schwartz, Ermish, Lloyd, Sainz, Butero, et al. 2024; Schwartz, Ermish, Lloyd, Sainz, Morris-Larsen, et al. 2024).

The BLM has determined that 290 of the 1,625 sites, structures, and districts in the DAPE are eligible for inclusion in the NRHP, 1,248 have been determined not eligible for inclusion in the NRHP, and the NRHP-eligibility of 70 sites remains unevaluated. A total of 15 sites, structures, and/or districts documented within the DAPE are eligible for the NRHP but extend more than 164 feet beyond the GLWP Class III inventory area. The BLM determined the portion of these sites documented within the DAPE is non-contributing to the eligibility of the overall resource. The Mercury Historic District, an NRHP-eligible property, is partially within the DAPE and the portion within the DAPE contributes to the eligibility of the resource. Additionally, there is one site within the DAPE that is a listed resource in the NRHP, the Mormon Emigrant Trail. One district listed in the NRHP enters the DAPE, the Sheep Mountain Range Archaeological District. However, the portion of the district within the DAPE does not contain any sites. The district was therefore not documented as part of the Class III cultural resources inventory and the portion within the DAPE is non-contributing to the overall listed district. A summary of all documented cultural resources within the DAPE is provided in Table 3-38. More detailed comparisons between the Action Alternatives are presented in Section 3.6.6 Environmental Consequences.

#### **Historic Property Visual Effects Analysis Results**

Historic properties subject to visual effects to the setting were identified by reviewing available records on NVCRIS (Class I inventory) and conducting Class III inventory of the DAPE. The Class I inventory identified approximately 2,500 cultural resources within the APEs. A total of 61 resources identified during the Class I inventory are historic properties requiring visual effects analysis. These sites were selected based upon three criteria: 1) Site is previously listed or recommended eligible for listing in the NRHP under Criteria A, B, or C; or the site is officially unevaluated for NRHP eligibility but may be significant under Criteria A, B, or C; 2) Site is located within the VAPE and the GLWP components would be visible from the site; and 3) Site retains or appears to retain integrity of association, setting and/or feeling based upon desktop review of previous documentation records and current aerial imagery. During the Class III inventory, an additional 103 sites were identified that also meet these parameters, bringing the total number of historic properties evaluated for visual effects to 164 sites.

Where access was permitted, historic properties were evaluated in the field by visual resource specialists. A determination of the magnitude of the change in landscape characteristic and the degree of visual contrast that would be created by GLWP facilities was made for each historic property. A summary of historic properties requiring visual effect analysis are presented in Table 3-39. For more details regarding the visual effects analysis and results, see LaValley and others (2024).

#### **Traditional Cultural Properties**

The BLM sought input about potential TCPs that may be affected by the GLWP through consultation letters and meetings. Although no formal TCPs have been identified by Tribes or by research of available information, there are a number of areas of Native American Religious Concern within and near the GLWP (refer to Section 3.7 Native American Religious Concerns). Archaeological site types that are especially

important to Native American Tribes include resource procurement sites in the Spring Mountains, settlement sites, storied rocks (rock writing sites), and sites with rock features.

### **Private and Non-accessible Lands**

The Proponent would obtain rights-of-entry from private landowners just prior to construction, which would be after all other fieldwork is completed and the ROD is published. Although it is uncertain if all private landowners would allow right-of-entry for supplemental Class III cultural resources inventory, the BLM still has an obligation to put forth a reasonable and good faith effort to identify historic properties within the APE. In support of the BLM's obligations under NHPA and NEPA, the BLM developed a GIS predictive model for cultural resources to predict the probability (e.g., low, medium, high) of cultural resources occurring on private and/or non-accessible lands. High-sensitivity areas are those most likely to contain cultural resources and low-sensitivity areas are those least likely to contain cultural resources. Inaccessible, non-private lands include areas behind locked gates; slopes exceeding 30 percent, impenetrable vegetation; and lands within the Mason Valley WMA, Hawthorne Army Depot, and the High Desert State Prison. The GIS predictive model included the parameters of slope and distance to water with both parameters set to moderate instead of weighing one more than the other. A summary of the predictive model results for private and/or other non-surveyed lands within the cultural resources direct effects analysis area is provided in Table 3-40.

Additionally, 126 sites, structures, buildings, and districts were identified through Class I research within areas not surveyed as part of the GLWP. Of these, 29 sites were recommended/determined eligible for inclusion in the NRHP, 70 sites were recommended or determined not eligible for inclusion in the NRHP, 21 sites have not been evaluated for inclusion in the NRHP, and 6 sites have unknown eligibilities. Based on the results of the predictive model, existing Class I information, and the general results of the Class III cultural resources survey, potential site types present within private and/or and non-accessible land within the DAPE likely include: lithic scatters, rock features, can and/or glass scatters, temporary camps, ranches, mining and prospecting-related features, roads, and canals. The GIS predictive model combined with the previous research provides the likely nature and location of historic properties within the DAPE.

**Table 3-38. Cultural Resource Site Types and NRHP Status within the DAPE**

Action Alternative/ Component	Prehistoric Sites	Historic Sites	Multi-component Sites	Sites of Unknown Age	NRHP-listed	NRHP Eligible for Listing	NRHP Not Eligible for Listing	Unevaluated
Proposed Action Transmission Line	392	402	84	7	2	159	696	28
Proposed Action Distribution Lines	4	25	2	0	0	6	24	1
Proposed Action Other Substations, Amplifier Sites, Material Yards Microwave Sites, and Tensioning Areas	42	61	10	0	2	15	92	4
Proposed Action Roads	271	437	105	6	2	159	633	25
AS-1	2	2	0	0	0	0	4	0
AS-2 (Proposed Action)	2	0	0	0	0	2	0	0
ES-1	0	1	0	0	0	0	1	0
ES-2 (Proposed Action)	0	1	0	0	0	0	1	0
ES-3	1	4	1	0	0	2	4	0
AM-1	0	0	0	0	0	0	0	0
AM-2 (Proposed Action)	0	0	0	0	0	0	0	0
AM-2 (Proposed Action) Option 1 Distribution Line	0	1	0	0	0	0	1	0
AM-2 (Proposed Action) Option 2 Distribution Line	0	1	0	0	0	0	1	0
Losee Transmission Alternative A	0	6	1	0	1	1	5	0
Losee – Proposed Action	0	5	1	0	1	1	4	0
TUSK Transmission Alternative B	0	0	0	0	0	0	0	0
TUSK – Proposed Action	0	0	0	0	0	0	0	0
Beatty Transmission Alternative A	73	19	6	1	0	19	77	3
Beatty Transmission Alternative C	89	17	3	1	0	21	87	2
Beatty Transmission Alternative G	60	27	11	4	0	9	82	11

**Table 3-38. Cultural Resource Site Types and NRHP Status within the DAPE  
(continued)**

<b>Action Alternative/ Component</b>	<b>Prehistoric Sites</b>	<b>Historic Sites</b>	<b>Multi-component Sites</b>	<b>Sites of Unknown Age</b>	<b>NRHP-listed</b>	<b>NRHP Eligible for Listing</b>	<b>NRHP Not Eligible for Listing</b>	<b>Unevaluated</b>
Beatty Transmission Alternative K	63	21	4	3	0	10	71	10
Beatty Transmission Alternative L	99	17	6	2	0	23	97	4
Beatty – Proposed Action	78	19	5	1	0	19	81	3
Scotty’s Junction Transmission – Proposed Action	47	13	18	0	0	12	64	2
Scotty’s Junction Transmission Alternative A	25	10	9	0	0	14	29	1
Scotty’s Junction Transmission Alternative B	19	6	20	0	0	10	33	2
Mason Valley WMA Transmission Alternative A	33	6	2	0	0	14	12	15
Mason Valley WMA – Proposed Action	3	3	2	0	0	2	3	3
Carson River Transmission Alternative A	59	49	15	1	0	30	88	6
Carson River Transmission Alternative C	105	50	26	0	0	52	125	4
Carson River – Proposed Action	68	46	15	1	0	28	96	6

*Table Acronym(s):* AM – Amargosa Microwave; AS – Amargosa Substation; DAPE – Direct Area of Potential Effects; ES – Esmeralda Substation; NRHP – National Register of Historic Places; TUSK – Tule Springs Fossil Beds National Monument; WMA – Wildlife Management Area

**Table 3-39. Visual Effect Analysis of Historic Properties in the VAPE**

<b>Action Alternative/ Component</b>	<b>Prehistoric Sites</b>	<b>Historic Sites</b>	<b>Multi- component Sites</b>	<b>Sites of Unknown Age</b>	<b>NRHP- listed</b>	<b>NRHP Eligible for Listing</b>	<b>Unevaluated</b>
Proposed Action Transmission Line	81	13	20	32	4	107	35
Proposed Action Distribution Lines	0	4	0	0	0	4	0
Fort Churchill Substation and Northwest Substation Expansion	0	2	0	1	0	2	1
AS-1	0	0	0	0	0	0	0
AS-2 (Proposed Action)	0	0	0	0	0	0	0
ES-1	0	2	0	0	0	2	0
ES-2 (Proposed Action)	0	0	0	0	0	0	0
ES-3	0	0	0	0	0	0	0
AM-1	0	0	0	0	0	0	0
AM-2 (Proposed Action) Option 1 Distribution Line	0	0	0	0	0	0	0
AM-2 (Proposed Action) Option 2 Distribution Line	0	0	0	0	0	0	0
Losee Transmission Alternative A	0	0	1	0	0	0	1
Losee – Proposed Action	0	0	1	0	0	0	1
TUSK Transmission Alternative B	0	2	0	0	1	1	0
TUSK – Proposed Action	0	2	0	0	1	1	0
Beatty Transmission Alternative A	32	0	8	2	0	40	2
Beatty Transmission Alternative C	30	0	8	2	0	38	2
Beatty Transmission Alternative G	31	0	12	2	0	42	3
Beatty Transmission Alternative K	33	0	11	2	0	43	3
Beatty Transmission Alternative L	32	0	8	2	0	40	2
Beatty – Proposed Action	32	0	8	2	0	40	2
Scotty’s Junction Transmission Alternative A	0	0	1	0	0	1	0
Scotty’s Junction Transmission Alternative B	0	0	1	0	0	1	0
Scotty’s Junction – Proposed Action	0	0	1	0	0	1	0

**Table 3-39. Visual Effect Analysis of Historic Properties in the VAPE  
(continued)**

<b>Action Alternative/ Component</b>	<b>Prehistoric Sites</b>	<b>Historic Sites</b>	<b>Multi- component Sites</b>	<b>Sites of Unknown Age</b>	<b>NRHP- listed</b>	<b>NRHP Eligible for Listing</b>	<b>Unevaluated</b>
Mason Valley WMA Transmission Alternative A	0	1	0	0	0	1	0
Mason Valley WMA – Proposed Action	0	1	0	0	0	1	0
Carson River Transmission Alternative A	40	2	5	4	0	45	6
Carson River Transmission Alternative C	40	4	5	4	2	45	6
Carson River – Proposed Action	40	2	5	4	0	45	6

*Table Acronym(s):* AM – Amargosa Microwave; AS – Amargosa Substation; ES – Esmeralda Substation; NRHP – National Register of Historic Places; TUSK – Tule Springs Fossil Beds National Monument; VAPE – Visual Area of Potential Effects; WMA – Wildlife Management Area

**Table 3-40. Cultural Resources Probability on Private and/or Non-accessible Lands by Action Alternative and/or Component**

<b>Action Alternative/Component</b>	<b>Private Land (acres)</b>	<b>Non-accessible Federal or State Land (acres)</b>	<b>Cultural Resources by High/Medium/Low Probability Levels (acres)</b>
Proposed Action Transmission Line	9,796	1,744	1,582/3,858/6,100
Proposed Action Distribution Lines	<1	79	0/22/57
Proposed Action Amplifier Sites, Material Yards, Microwave Sites, and Tensioning Areas	1,750	67	497/601/719
Proposed Action Roads	5,116	773	960/2,799/2,130
New Fort Churchill Substation and Northwest Substation Expansion	19	<1	0/19/0
AS-1	0	0	N/A
AS-2 (Proposed Action)	0	0	N/A
ES-1	0	0	N/A
ES-2 (Proposed Action)	0	0	N/A
ES-3	0	0	N/A
AM-1	6	0	0/0/6
AM-2 (Proposed Action)	0	0	N/A
AM-2 (Proposed Action) Option 1 Distribution Line	0	0	N/A
AM-2 (Proposed Action) Option 2 Distribution Line	0	0	N/A
Losee Transmission Alternative A	<1	0	0/<1/0
Losee – Proposed Action	0	0	N/A
TUSK Transmission Alternative B	33	2	0/33/2
TUSK – Proposed Action	47	1	0/44/4
Beatty Transmission Alternative A	9	0	9/0/0
Beatty Transmission Alternative C	0	0	N/A
Beatty Transmission Alternative G	45	0	12/12/21
Beatty Transmission Alternative K	9	0	9/0/0
Beatty Transmission Alternative L	9	<1	9/0/<1
Beatty – Proposed Action	36	0	5/31/0
Scotty’s Junction Transmission Alternative A	49	0	0/49/0
Scotty’s Junction Transmission Alternative B	270	9	0/279/0
Scotty’s Junction – Proposed Action	281	3	0/284/0
Mason Valley WMA Transmission Alternative A	122	131	212/15/26
Mason Valley WMA – Proposed Action	62	275	337/0/0
Carson River Transmission Alternative A	3,019	371	1,339/1,149/902
Carson River Transmission Alternative C	1,360	400	485/610/665
Carson River Transmission – Proposed Action	2,791	474	1,139/1,255/871

*Table Acronym(s):* AM – Amargosa Microwave; AS – Amargosa Substation; ES – Esmeralda Substation; N/A – Not applicable; TUSK – Tule Springs Fossil Beds National Monument; WMA – Wildlife Management Area

### **3.6.6 Environmental Consequences**

This section assesses the effects on cultural resources/historic properties that would result from the No Action Alternative and from the construction, O&M, and decommissioning of the Action Alternatives. The GLWP is anticipated to result in direct effects to cultural resources, some of which may adversely affect historic properties. Effects to cultural resources are considered adverse if they alter the characteristics of the site that render it eligible for listing in the NRHP or important to Native American Tribes. Adverse effects that may require mitigation include physical destruction or alteration of the property, restricting Tribal access, and changing the physical setting of historic properties (e.g., visual effects).

Adverse effects to historic properties would be avoided, minimized, or mitigated. Effects to historic properties would be avoided as much as practicable through design of the GLWP. If adverse effects are not avoidable, historic properties would be subject to appropriate treatment measures prior to construction. Additional information regarding avoiding, minimizing, and mitigating adverse effects can be found in Section 3.6.6.13 Measures to Avoid and/or Minimize Impacts and the HPTP in Appendix K.

Cultural resources that are not eligible for listing in the NRHP warrant no further consideration under the NHPA. Under NEPA, effects to these resources would still be considered impacts regardless of NRHP-eligibility status. Through the micro-siting process, the Proponent would avoid as many cultural resource sites as practicable. The results of the cultural resources investigations and effects of the GLWP are summarized below.

#### **3.6.6.1 Direct and Indirect Impacts from No Action Alternative**

It is anticipated that under the No Action Alternative, the current uses and trends would continue to occur. There would be no effects to cultural resources attributed to the construction, O&M, and decommissioning of the GLWP under the No Action Alternative.

#### **3.6.6.2 Direct and Indirect Impacts Common to All Action Alternatives**

Physical effects and visual effects are both considered direct effects that could be adverse. Therefore, the summary tables presented in the following sections do not distinguish between cultural resources in the DAPE and VAPE. Some resources may be affected both physically and visually, while others may be affected by either physical or visual effects. Specific discussions related to the Action Alternatives are provided in subsequent sections.

#### **Construction**

The construction of GLWP components, such as new access roads, may cause direct physical effects to cultural resources/historic properties. Impacts from these construction activities may include the displacement of artifacts, features, or cultural deposits and damage or destruction of artifacts or features. The setting of historic properties in the VAPE may be visually affected by the GLWP from the overhead lines, tower structures, substations, and amplifier sites. Other construction effects to historic properties may include temporary increased dust (atmospheric) and audible effects (construction machinery) associated with construction.

Indirect effects may include illegal artifact collection, vandalism, or looting due to new or increased access near sites. Studies show that unauthorized artifact collection and vandalism are more likely to occur at archaeological and historical sites near roads in rural settings than in more remote roadless settings (Ahlstrom et al. 1992; Nickens et al. 1981; Spangler 2006; Spangler et al. 2006). Effects to historic



properties can also occur depending on how far the sites are from roads; the closer roads are to sites, the greater the potential for unauthorized collection and vandalism. Site type and visibility are also factors. For example, historic structures are more vulnerable than artifact scatters because they are more visible. Most of the known NRHP-eligible sites are artifact scatters in remote areas of the DAPE, which are less visible and less vulnerable to unauthorized collection or vandalism. Construction activities may also modify the slope of the natural terrain, compact soils, and/or remove vegetation which may indirectly cause increased erosion of archaeological deposits.

Specific EMMs would be implemented to help reduce effects to cultural resources/historic properties such as mandatory cultural sensitivity training for all worker, marking boundaries of authorized work areas, and restricting GLWP-related travel to designated routes (Appendix C. EMMs CULT-1, CULT-2, CULT-4, CULT-5, and CULT-8).

### **Operations and Maintenance**

Operations and maintenance activities that may have the potential to affect historic properties include vegetation management, maintenance of existing roads, and transmission line structure maintenance/repair. Adverse effects from O&M activities are not anticipated if any ground disturbance is confined to previously disturbed areas and EMMs are implemented (Appendix C. EMMs CULT-4 and CULT-5).

### **Decommissioning**

Before terminating the ROW and beginning decommissioning activities, a Reclamation Plan and a Decommissioning Plan would be prepared and approved by the federal ROW agencies. Potential effects during decommissioning would be similar to those described for the construction phase, though to a lesser extent.

## **3.6.6.3 Direct and Indirect Impacts from Proposed Action**

### **Construction, Operations and Maintenance, and Decommissioning**

Cultural resources within the DAPE for the Proposed Action transmission line temporary ROW area and historic properties subject to visual analysis in the corresponding VAPE are listed in Table 3-41. A total of 982 sites were identified within the DAPE for the Proposed Action transmission line temporary ROW area and/or analyzed for visual effects. Of these, 696 resources were determined not eligible and would not be affected under NHPA. An additional 30 resources within the VAPE were determined to have no effects visually under NHPA. Of the remaining sites, 48 resources were determined to not be adversely affected physically or visually and no further consideration of GLWP impacts is warranted. In total, the BLM has determined that up to 208 sites could be adversely affected by the Proposed Action.

Of the 208 sites that could be adversely impacted, 136 sites could be physically impacted, 40 sites could be physically and visually impacted, and 32 sites could be visually impacted. Sites that could be adversely impacted include features of ceremonial significance, transportation networks, railroad-related camps, mining sites, artifact scatters with data potential, petroglyphs, kilns, irrigation systems, and potential funerary features. One NRHP-listed property, Mormon Emigrant Trail, could be adversely impacted.

**Table 3-41. Cultural Resources DAPE and VAPE  
Summary for Proposed Action Transmission Line ROW**

<b>Cultural Resource Description</b>	<b>Proposed Action</b>
Prehistoric Site	440
Historic Site	409
Multi-component Site	96
Unknown age Site	37
NRHP Listed	6
NRHP Eligible	222
NRHP Unevaluated	58
NRHP Not Eligible	696
Adverse Effects (NHPA)	208
No Adverse Effects (NHPA)	48
No Effects (NHPA)	726
<b>Site Total</b>	<b>982</b>

*Table Acronym(s):* DAPE – Direct Area of Potential Effects; NHPA – National Historic Preservation Act; ROW – Right-of-way; NRHP – National Register of Historic Places; VAPE – Visual Area of Potential Effects

The DAPE for the Proposed Action transmission line temporary ROW contains approximately 11,540 acres of private and/or non-accessible land. The cultural sensitivity GIS model predicted the probability that approximately 1,582 acres of those lands would have high sensitivity, approximately 3,858 acres medium sensitivity, and approximately 6,100 acres low sensitivity.

**Distribution Lines**

Cultural resources within the DAPE for the Proposed Action temporary ROW area for the distribution lines and historic properties subject to visual analysis in the corresponding VAPE are listed in Table 3-42. A total of 28 sites were identified within the DAPE for the Proposed Action temporary ROW area and/or analyzed for visual effects. Of these, 21 resources were determined not eligible and would not be affected under NHPA. Of the remaining seven sites, one resource was determined to not be adversely affected physically or visually and no further consideration of the Proposed Action impacts is warranted. In total, the BLM has determined that up to five sites could be adversely affected by the Proposed Action. Of these, four sites could be physically affected; one could be visually affected. Sites that could be adversely affected include prehistoric, historic, and multi-component artifact scatters, features of ceremonial significance, and constructed elements (e.g., roads, buildings, railroads).

A Proposed Action distribution line would cross the historic Mercury Highway and the Mercury Historic District. The visual effects analysis found no adverse effects to either the highway or district due to existing distribution and transmission lines of varying heights and types. Physical effects are not known at this time, so adverse effects are assumed until design plans are finalized. The distribution line would span the historic Mercury Highway and tie into the historic Mercury Switch Station (a contributing element to the Mercury Historic District).

The DAPE for the Proposed Action distribution lines contains approximately 79 acres of private and/or non-accessible land. The cultural sensitivity GIS model predicted the probability that approximately 22 acres of those lands would have medium sensitivity and approximately 57 acres low sensitivity.

**Table 3-42. Cultural Resources DAPE and VAPE  
Summary for Proposed Action Distribution Lines**

<b>Cultural Resource Description</b>	<b>Proposed Action Distribution Lines</b>
Prehistoric Site	2
Historic Site	24
Multi-component Site	2
Unknown Age Site	0
NRHP Listed	0
NRHP Eligible	6
NRHP Unevaluated	1
NRHP Not Eligible	21
Adverse Effects (NHPA)	5
No Adverse Effects (NHPA)	1
No Effects (NHPA)	22
<b>Site Total</b>	<b>28</b>

*Table Acronym(s):* DAPE – Direct Area of Potential Effects; NHPA – National Historic Preservation Act; NRHP – National Register of Historic Places; VAPE – Visual Area of Potential Effects

#### **Amplifier Sites, Construction Yards, Microwave Sites, and Tensioning Areas**

Cultural resources within the DAPE for the Proposed Action amplifier sites, construction yards, existing microwave sites, and pull sites are listed in Table 3-43. Major visual changes to the landscape are not anticipated with these GLWP components and no visual effects analysis was completed for them. Specific discussion related to the Amargosa Microwave Alternatives is provided in the subsequent section.

A total of two sites were identified within the DAPE for the Proposed Action amplifier sites. One of these is determined not eligible and would not be affected under NHPA. One was determined eligible and would be adversely affected under NHPA. A total of eight sites were identified within the DAPE for the Proposed Action construction yards. All eight were determined not eligible and would not be affected under NHPA. A total of two sites were identified within the DAPE for the Proposed Action existing microwave sites. Both of these were determined not eligible and would not be affected under NHPA.

Cultural resources within the DAPE for the Proposed Action temporary ROW area for pull sites and historic properties subject to visual analysis in the corresponding VAPE are listed in Table 3-41. A total of 104 sites were identified within the DAPE for the Proposed Action temporary ROW area for pull sites and/or analyzed for visual effects. Of these, 84 resources were determined not eligible and would not be affected under NHPA. Of the remaining sites, 6 resources (including the NRHP-listed Sheep Mountain Range Archaeological District) were determined to not be adversely affected physically or visually and no further consideration of the Proposed Action impacts is warranted. In total, the BLM has determined that up to 14 sites could be adversely affected by the Proposed Action. Of the 14 sites that could be adversely impacted, all 14 sites could be physically impacted and none could be visually impacted. These include features of ceremonial significance, transportation networks, artifact scatters with data potential, irrigation systems, a ranch, and potential funerary features. One NRHP-listed historic property in the DAPE, the Mormon Emigrant Trail, could be adversely impacted.

**Table 3-43. Cultural Resources DAPE and VAPE Summary for Proposed Action Amplifier Sites, Construction Yards, Microwave Sites, and Pull Sites**

Cultural Resource Description	Amplifier Sites	Construction Yards	Microwave Sites <sup>a</sup>	Pull Sites
Prehistoric Site	1	4	0	37
Historic Site	1	4	2	57
Multi-component Site	0	0	0	10
Unknown Age Site	0	0	0	0
NRHP Listed	0	0	0	2
NRHP Eligible	1	0	0	14
NRHP Unevaluated	0	0	0	4
NRHP Not Eligible	1	8	2	84
Adverse Effects (NHPA)	1	0	0	14
No Adverse Effects (NHPA)	0	0	0	6
No Effects (NHPA)	1	8	2	84
<b>Site Totals</b>	<b>2</b>	<b>8</b>	<b>2</b>	<b>104</b>

*Table Acronym(s):* DAPE – Direct Area of Potential Effects; NHPA – National Historic Preservation Act; NRHP – National Register of Historic Places; VAPE – Visual Area of Potential Effects

*Table Note(s):* <sup>a</sup>This does not include the Amargosa Microwave Site

The DAPE for the Proposed Action construction yards, microwave sites, and pull sites contains approximately 1,817 acres of private and/or non-accessible land. The cultural sensitivity GIS model predicted the probability that approximately 497 acres of those lands would have high sensitivity, approximately 601 acres would have medium sensitivity, and approximately 719 acres would have low sensitivity.

#### Access Roads

Cultural resources within the DAPE for the Proposed Action access roads are listed in Table 3-44. Discernible visual changes to the landscape are not anticipated with the construction or improvement of access roads and no visual effects analysis was completed for them.

**Table 3-44. Cultural Resources DAPE and VAPE Summary for Proposed Action Access Roads**

Cultural Resource Description	Access Roads
Prehistoric Site	271
Historic Site	437
Multi-component Site	105
Unknown Age Site	6
NRHP Listed	2
NRHP Eligible	159
NRHP Unevaluated	25
NRHP Not Eligible	633

**Table 3-44 Cultural Resources DAPE and VAPE  
Summary for Proposed Action Access Roads  
(continued)**

<b>Cultural Resource Description</b>	<b>Access Roads</b>
Adverse Effects (NHPA)	171
No Adverse Effects (NHPA)	15
No Effects (NHPA)	633
<b>Site Total</b>	<b>819</b>

*Table Acronym(s):* DAPE – Direct Area of Potential Effects; NHPA – National Historic Preservation Act; NRHP – National Register of Historic Places; VAPE – Visual Area of Potential Effects

A total of 819 sites were identified within the DAPE for the Proposed Action access roads. Of these, 633 resources were determined not eligible and would not be affected under NHPA. Of the remaining sites, 15 resources (including the NRHP-listed Sheep Mountain Range Archaeological District) were determined to not be adversely affected. In total, the BLM has determined that up to 171 sites could be adversely affected by the Proposed Action access roads. These include features of ceremonial significance, transportation networks, railroad-related camps, mining sites, lithic and artifact scatters with data potential, petroglyphs, kilns, irrigation systems, and potential funerary features. One NRHP-listed historic property in the DAPE, the Mormon Emigrant Trail, could be adversely affected.

Storey County has expressed concerns about the Proposed Action access roads increasing visitation and potentially vandalism at the NRHP-listed Lagomarsino Petroglyph site. Currently, the Lagomarsino Petroglyph site is accessed through rough two-track roads requiring a 4-wheel drive high-clearance vehicle. The Proposed Action would improve existing roads; no new roads leading toward this petroglyph site would be constructed. The access road improvements would be limited to areas near the Proposed Action. There would be no existing access road improvement that would directly connect any major highways to the Lagomarsino Petroglyph site. The closest existing road that would be improved as part of the Proposed Action is approximately one mile from the petroglyph site. The Proposed Action would not provide direct access to the site and is not anticipated to result in an increase of visitation or vandalism from the improved access roads in the vicinity of the site. Therefore, the Proposed Action would not have an adverse effect on this NRHP-listed property.

A proposed new access road would cross a portion of the Mercury Historic District for a total length of approximately 0.03 miles. At this time, adverse physical effects to the district are assumed.

The DAPE for the Proposed Action access roads contains approximately 5,889 acres of private or non-accessible land. The cultural sensitivity GIS model predicted the probability that approximately 960 acres of those lands would have high sensitivity, approximately 2,799 acres would have medium sensitivity, and approximately 2,130 acres would have low sensitivity.

#### **3.6.6.4 Direct and Indirect Impacts from Losee Transmission Line Route Group**

##### **Construction, Operations and Maintenance, and Decommissioning**

Cultural resources within the DAPE for the Losee transmission alternatives and historic properties subjected to visual analysis in the corresponding VAPE are listed in Table 3-45. A total of eight sites were identified within the DAPE for the Losee Transmission Alternative A and/or analyzed for visual effects. Of

these, five resources identified within the DAPE were determined not eligible and would not be affected under NHPA. The remaining three sites (including the NRHP-listed Sheep Mountain Range Archaeological District) were determined to not be adversely affected physically or visually and no further consideration of the Losee Transmission Alternative A impacts is warranted. In total, the BLM has determined that no sites would be adversely affected by Losee Transmission Alternative A.

**Table 3-45. Cultural Resources DAPE and VAPE  
Summary for the Losee Transmission Alternatives**

<b>Cultural Resource Description</b>	<b>Proposed Action</b>	<b>Losee Transmission Alternative A</b>
Prehistoric Site	0	0
Historic Site	6	7
Multi-component Site	1	1
Unknown Age Site	0	0
NRHP Listed	1	1
NRHP Eligible	1	1
NRHP Unevaluated	1	1
NRHP Not Eligible	4	5
Adverse Effects (NHPA)	0	0
No Adverse Effects (NHPA)	3	3
No Effects (NHPA)	4	5
<b>Site Totals</b>	<b>7</b>	<b>8</b>

*Table Acronym(s):* DAPE – Direct Area of Potential Effects; NHPA – National Historic Preservation Act; NRHP – National Register of Historic Places; VAPE – Visual Area of Potential Effects

The DAPE for the Losee Transmission Alternative A contains less than one acre of private land. The cultural sensitivity GIS model predicted the probability that one acre of private land would have medium sensitivity.

A total of seven sites were identified within the DAPE for the Proposed Action and/or analyzed for visual effects. Of these, four resources identified within the DAPE were determined not eligible and would not be affected under NHPA. The remaining three sites (including the NRHP-listed Sheep Mountain Range Archaeological District) were determined to not be adversely affected physically or visually and no further consideration of the Proposed Action impacts is warranted. In total, the BLM has determined that no sites would be adversely affected by the Proposed Action. Neither the Proposed Action nor Losee Transmission Alternative A would adversely affect historic properties.

### **3.6.6.5 Direct and Indirect Impacts from TUSK Transmission Line Route Group**

#### **Construction, Operations and Maintenance, and Decommissioning**

Cultural resources within the DAPE for the TUSK transmission alternatives and historic properties subjected to visual analysis in the corresponding VAPE are listed in Table 3-46. No sites were identified within the DAPE for the Proposed Action or the TUSK Transmission Alternative B. Two sites were analyzed for visual effects, the Tule Springs Ranch/Floyd Lamb Park and the Las Vegas & Tonopah Railroad. It was determined there would be no effects to the Tule Springs Ranch/Floyd Lamb Park and the Las Vegas & Tonopah Railroad would not be adversely affected by TUSK Transmission Alternative B. No further consideration of the TUSK Transmission Alternative B impacts is warranted.

**Table 3-46. Cultural Resources DAPE and VAPE Summary  
for the TUSK Transmission Alternatives**

<b>Cultural Resource Description</b>	<b>Proposed Action</b>	<b>TUSK Transmission Alternative B</b>
Prehistoric Site	0	0
Historic Site	2	2
Multi-component Site	0	0
Unknown Age Site	0	0
NRHP Listed	1	1
NRHP Eligible	1	1
NRHP Unevaluated	0	0
NRHP Not Eligible	0	0
Adverse Effects (NHPA)	0	0
No Adverse Effects (NHPA)	1	1
No Effects (NHPA)	1	1
<b>Site Totals</b>	<b>2</b>	<b>2</b>

*Table Acronym(s):* DAPE – Direct Area of Potential Effects; NHPA – National Historic Preservation Act; NRHP – National Register of Historic Places; TUSK – Tule Springs Fossil Beds National Monument; VAPE – Visual Area of Potential Effects

The DAPE for the TUSK Transmission Alternative B contains approximately 35 acres of private and/or non-accessible land. The cultural sensitivity GIS model predicted the probability that approximately 33 acres of those lands would have medium sensitivity and approximately 2 acres would have low sensitivity. Many of these areas are developed and/or disturbed. The DAPE for the Proposed Action contains approximately 48 acres of private and/or non-accessible land. The cultural sensitivity GIS model predicted the probability that approximately 44 acres of those lands would have medium sensitivity and approximately 4 acres would have low sensitivity. Neither the Proposed Action nor TUSK Transmission Alternative B would adversely affect historic properties.

### **3.6.6.6 Direct and Indirect Impacts from Beatty Transmission Line Route Group**

#### **Construction, Operations and Maintenance, and Decommissioning**

Cultural resources within the DAPE for the Beatty Transmission Alternatives and historic properties subject to visual analysis in the corresponding VAPE are listed in Table 3-47. A total of 127 sites were identified within the DAPE for Beatty Transmission Alternative A and/or analyzed for visual effects. Of these, 77 resources identified within the DAPE were determined not eligible and would not be affected under NHPA. An additional seven resources within the VAPE were determined to have no effect visually under NHPA. Of the remaining sites, eight resources were determined to not be adversely affected physically or visually and no further consideration of Beatty Transmission Alternative A impacts is warranted. In total, the BLM has determined that up to 35 sites could be adversely affected by Beatty Transmission Alternative A. Of the 35 sites that could be adversely impacted, 7 sites could be physically affected, 14 sites could be physically and visually affected, and 14 sites could be visually affected. Sites that could be adversely affected include features of ceremonial significance, transportation networks, and artifact scatters with data potential.

The DAPE for Beatty Transmission Alternative A contains approximately 9 acres of private and/or non-accessible land. The cultural sensitivity GIS model predicted the probability the 9 acres would have high sensitivity.

**Table 3-47. Cultural Resources DAPE and VAPE Summary for the Beatty Transmission Alternatives**

<b>Cultural Resource Description</b>	<b>Proposed Action</b>	<b>Beatty Trans. Alt. A</b>	<b>Beatty Trans. Alt. C</b>	<b>Beatty Trans. Alt. G</b>	<b>Beatty Trans. Alt. K</b>	<b>Beatty Trans. Alt. L</b>
Prehistoric Site	97	93	105	87	93	116
Historic Site	19	19	17	27	21	17
Multi-component Site	11	12	9	21	15	12
Unknown Age Site	3	3	3	6	5	4
NRHP Listed	0	0	0	0	0	0
NRHP Eligible	44	45	43	47	50	46
NRHP Unevaluated	5	5	4	10	13	6
NRHP Not Eligible	81	77	87	84	71	97
Adverse Effects (NHPA)	34	35	35	19	24	36
No Adverse Effects (NHPA)	8	8	6	15	19	9
No Effects (NHPA)	88	84	93	107	91	104
<b>Site Totals</b>	<b>130</b>	<b>127</b>	<b>134</b>	<b>141</b>	<b>134</b>	<b>149</b>

*Table Acronym(s):* Alt. – Alternative; DAPE – Direct Area of Potential Effects; NHPA – National Historic Preservation Act; NRHP – National Register of Historic Places; Trans. – Transmission; VAPE – Visual Area of Potential Effects

A total of 134 sites were identified within the DAPE for the Beatty Transmission Alternative C and/or analyzed for visual effects. Of these, 87 resources identified within the DAPE were determined not eligible and would not be affected under NHPA. An additional six resources within the VAPE were determined to have no effect visually under NHPA. Of the remaining sites, six resources were determined to not be adversely affected physically or visually and no further consideration of Beatty Transmission Alternative C impacts is warranted. In total, the BLM has determined that up to 35 sites could be adversely affected by the Beatty Transmission Alternative C. Of the 35 sites that could be adversely affected, 6 sites could be physically affected, 16 sites could be physically and visually affected, and 13 sites could be visually affected. Sites that could be adversely affected include features of ceremonial significance, transportation networks, and artifact scatters with data potential. The DAPE for the Beatty Transmission Alternative C would not cross any private or non-accessible land.

A total of 141 sites were identified within the DAPE for the Beatty Transmission Alternative G and/or analyzed for visual effects. Of these, 84 resources identified within the DAPE were determined not eligible and would not be affected under NHPA. An additional 23 resources within the VAPE were determined to have no effect visually under NHPA. Of the remaining sites, 15 resources were determined to not be adversely affected physically or visually and no further consideration of Beatty Transmission Alternative G impacts is warranted. In total, the BLM has determined that up to 19 sites could be adversely affected by the Beatty Transmission Alternative G. Of the 19 sites that could be adversely affected, 12 sites could be physically affected, 5 sites could be physically and visually affected, and 2 sites could be visually affected. Sites that could be adversely affected include features of ceremonial significance, rock writing features, and artifact scatters with data potential. The Beatty Transmission Alternative G would have the least impact to the number of historic properties and more specifically the least impact to sites containing features of ceremonial significance to Native American Tribes.

The DAPE for the Beatty Transmission Alternative G contains approximately 45 acres of private and/or non-accessible land. The cultural sensitivity GIS model predicted the probability that 12 acres of those



lands would have high sensitivity, 12 acres would have medium sensitivity, and 21 acres would have low sensitivity.

A total of 134 sites were identified within the DAPE for the Beatty Transmission Alternative K and/or analyzed for visual effects. Of these, 71 resources identified within the DAPE were determined not eligible and would not be affected under NHPA. An additional 20 resources within the VAPE were determined to have no effect visually under NHPA. Of the remaining sites, 19 resources were determined to not be adversely affected physically or visually and no further consideration of the Beatty Transmission Alternative K impacts is warranted. In total, the BLM has determined that up to 24 sites could be adversely affected by the Beatty Transmission Alternative K. Of the 24 sites that could be adversely impacted, 16 sites could be physically affected, 2 sites could be physically and visually affected, and 6 sites could be visually affected. Sites that could be adversely affected include features of ceremonial significance, rock writing features, and artifact scatters with data potential.

The DAPE for the Beatty Transmission Alternative K contains approximately 9 acres of private and/or non-accessible land. The cultural sensitivity GIS model predicted the probability that the 9 acres would have high sensitivity.

A total of 149 sites were identified within the DAPE for the Beatty Transmission Alternative L and/or analyzed for visual effects. Of these, 97 resources identified within the DAPE are determined not eligible and would not be affected under NHPA. An additional seven resources within the VAPE were determined to have no effect visually under NHPA. Of the remaining sites, nine resources were determined to not be adversely affected physically or visually and no further consideration of the Beatty Transmission Alternative L impacts is warranted. In total, the BLM has determined that up to 36 sites could be adversely affected by the Beatty Transmission Alternative L. Of the 36 sites that could be adversely impacted, 9 sites could be physically affected, 17 sites could be physically and visually affected, and 10 sites could be visually affected. Sites that could be adversely affected include features of ceremonial significance, rock writing features, and artifact scatters with data potential.

The DAPE for Beatty Transmission Alternative L contains approximately 10 acres of private and/or non-accessible land. The cultural sensitivity GIS model predicted the probability 9 acres of those private lands would have high sensitivity, with less than 1 acre of low sensitivity.

A total of 130 sites were identified within the DAPE for the Proposed Action and/or analyzed for visual effects. Of these, 81 resources identified within the DAPE were determined not eligible and would not be affected under NHPA. An additional seven resources within the VAPE were determined to have no effect visually under NHPA. Of the remaining sites, 8 were determined to not be adversely affected physically or visually and no further consideration of the GLWP's impacts is warranted. In total, the BLM has determined that up to 34 sites could be adversely affected by the Proposed Action. Of the 34 sites that could be adversely impacted, 6 sites could be physically affected, 15 sites could be physically and visually affected, and 13 sites could be visually affected. Sites that could be adversely affected include features of ceremonial significance, transportation networks, and artifact scatters with data potential.

The DAPE for the Proposed Action contains approximately 96 acres of private and/or non-accessible land. The cultural sensitivity GIS model predicted the probability that approximately 5 acres of those private lands would have high sensitivity, approximately 86 acres would have medium sensitivity, and approximately 5 acres would have low sensitivity. All of the Beatty Transmission Alternatives would

adversely affect historic properties; however, Beatty Transmission Alternative G would impact the least number of historic properties of all the Beatty Transmission Alternatives.

### 3.6.6.7 Direct and Indirect Impacts from Scotty’s Junction Transmission Line Route Group

#### **Construction, Operations and Maintenance, and Decommissioning**

Cultural resources within the DAPE for the Scotty’s Junction Transmission Alternatives and historic properties subject to visual analysis in the corresponding VAPE are listed in Table 3-48. A total of 44 sites were identified within the DAPE for the Scotty’s Junction Transmission Alternative A and/or analyzed for visual effects. Of these, 29 resources identified within the DAPE were determined not eligible and would not be affected under NHPA. The remaining 15 sites were determined to be potentially adversely affected. Of the 15 sites that could be adversely impacted, all 15 could be physically affected and 1 was also determined to be visually affected. Sites that could be adversely affected include features of ceremonial significance, artifact scatters with data potential, and potential funerary features.

**Table 3-48. Cultural Resources DAPE and VAPE  
Summary for the Scotty’s Junction Transmission Alternatives**

<b>Cultural Resource Description</b>	<b>Proposed Action</b>	<b>Scotty’s Junction Transmission Alternative A</b>	<b>Scotty’s Junction Transmission Alternative B</b>
Prehistoric Site	47	25	19
Historic Site	13	10	6
Multi-component Site	19	9	21
Unknown Age Site	0	0	0
NRHP Listed	0	0	0
NRHP Eligible	13	14	11
NRHP Unevaluated	2	1	2
NRHP Not Eligible	64	29	33
Adverse Effects (NHPA)	14	15	12
No Adverse Effects (NHPA)	1	0	1
No Effects (NHPA)	64	29	33
<b>Site Totals</b>	<b>79</b>	<b>44</b>	<b>46</b>

*Table Acronym(s):* NRHP – National Register of Historic Places; DAPE – Direct Area of Potential Effects; NHPA – National Historic Preservation Act; NRHP – National Register of Historic Places; VAPE – Visual Area of Potential Effects

The DAPE for Scotty’s Junction Transmission Alternative A contains approximately 49 acres of private or non-accessible land. The cultural sensitivity GIS model predicted the probability that the 49 acres would have medium sensitivity.

A total of 46 sites were identified within the DAPE for Scotty’s Junction Transmission Alternative B and/or analyzed for visual effects. Of these, 33 resources identified within the DAPE were determined not eligible and would not be affected under NHPA. One site was determined to be not adversely affected visually or physically under NHPA. The remaining 12 sites were determined to be potentially adversely affected physically. Sites that could be adversely affected include features of ceremonial significance, artifact scatters with data potential, and potential funerary features.

The DAPE for Scotty’s Junction Transmission Alternative B contains approximately 279 acres of private and/or non-accessible land. The cultural sensitivity GIS model predicted the probability that the 279 acres would have medium sensitivity.

A total of 79 sites were identified within the DAPE for the Scotty's Junction Proposed Action and/or analyzed for visual effects. Of these, 64 resources identified within the DAPE were determined not eligible and would not be affected under NHPA. One resource within the VAPE was determined to have no adverse effect visually under NHPA. The remaining 14 resources were determined to be potentially adversely affected physically. Sites that could be adversely affected include features of ceremonial significance, artifact scatters with data potential, and potential funerary features.

The DAPE for the Scotty's Junction Proposed Action contains approximately 284 acres of private, non-accessible, and/or other lands. The cultural sensitivity GIS model predicted the probability that the 284 acres would have medium sensitivity. All of the Scotty's Junction Transmission Alternatives would adversely affect historic properties; however, Scotty's Junction Transmission Alternative B would impact the least number of all the Scotty's Junction Alternatives. Scotty's Junction Transmission Alternative B would cross BIA-administered land on the Timbisha Shoshone Reservation. During the consultation process, the Timbisha Shoshone Tribe expressed they do not want the GLWP to cross Reservation lands.

### **3.6.6.8 Direct and Indirect Impacts of Mason Valley WMA Transmission Line Route Group**

#### **Construction, Operations and Maintenance, and Decommissioning**

Cultural resources within the DAPE for the Mason Valley WMA Transmission Alternatives and historic properties subject to visual analysis in the corresponding VAPE are listed in Table 3-49. A total of 41 sites were identified within the DAPE for the Mason Valley WMA Transmission Alternative A and/or analyzed for visual effects. Of these, 12 resources identified within the DAPE were determined not eligible and would not be affected under NHPA. One resource was determined to be not adversely affected under NHPA. The remaining 28 sites were determined potentially adversely affected. Of the 28 sites that could be adversely impacted, all 28 sites could be physically affected and 1 site was also determined to be visually affected. Sites that could be adversely affected include artifact scatters with data potential and irrigation features.

The DAPE for the Mason Valley WMA Transmission Alternative A contains 266 acres of private and/or non-accessible land. The cultural sensitivity GIS model predicted the probability that 225 acres of those private lands would have high sensitivity, 15 acres would have medium sensitivity, and 26 acres would have low sensitivity.

A total of eight sites were identified within the DAPE for the Proposed Action and/or analyzed for visual effects. Of these, three resources identified within the DAPE were determined not eligible and would not be affected under NHPA. One resource was determined to be not adversely affected under NHPA. The remaining four sites were determined to be potentially adversely affected physically. These include artifact scatters with data potential and an irrigation feature.

The DAPE for the Proposed Action contains approximately 337 acres of private and/or non-accessible land. The cultural sensitivity GIS model predicted the probability that the 337 acres would have high sensitivity. Both of the Mason Valley WMA Transmission Alternatives would adversely affect historic properties; however, Proposed Action would impact the least number.

**Table 3-49. Cultural Resources DAPE and VAPE Summary for the Mason Valley WMA Transmission Alternatives**

Cultural Resource Description	Proposed Action	Mason Valley WMA Transmission Alternative A
Prehistoric Site	3	33
Historic Site	3	6
Multi-component Site	2	2
Unknown Age Site	0	0
NRHP Listed	0	0
NRHP Eligible	2	14
NRHP Unevaluated	3	15
NRHP Not Eligible	3	12
Adverse Effects (NHPA)	4	28
No Adverse Effects (NHPA)	1	1
No Effects (NHPA)	3	12
<b>Site Totals</b>	<b>8</b>	<b>41</b>

*Table Acronym(s):* DAPE – Direct Area of Potential Effects; NHPA – National Historic Preservation Act; NRHP – National Register of Historic Places; VAPE – Visual Area of Potential Effect; WMA – Wildlife Management Area

### 3.6.6.9 Direct and Indirect Impacts of Carson River Transmission Line Route Group

#### **Construction, Operations and Maintenance, and Decommissioning**

Cultural resources within the DAPE for the Carson River Transmission Alternatives and historic properties subject to visual analysis in the corresponding VAPE are listed in Table 3-50. A total of 157 sites were identified within the DAPE for the Carson River Transmission Alternative A and/or analyzed for visual effects. Of these, 88 resources identified within the DAPE were determined not eligible and would not be affected under NHPA. An additional 10 resources within the VAPE were determined to have no effect visually under NHPA. Of the remaining sites, 15 resources were determined to not be adversely affected physically or visually and no further consideration of the Carson River Transmission Alternative A impacts is warranted. In total, the BLM has determined that up to 44 sites could be adversely affected by the Carson River Transmission Alternative A. Of the 44 sites that could be adversely impacted, 21 sites could be physically affected, 13 sites could be physically and visually affected, and 10 sites could be visually affected. Sites that could be adversely affected include features of ceremonial significance, artifact scatters with data potential, a ranch, a road, and irrigation features.

The DAPE for the Carson River Transmission Alternative A contains approximately 3,391 acres of private and/or non-accessible lands. The cultural sensitivity GIS model predicted the probability that 1,339 acres of those lands would have high sensitivity, 1,255 acres would have medium sensitivity, and 871 acres would have low sensitivity.

**Table 3-50. Cultural Resources DAPE and VAPE Summary for the Carson River Transmission Alternatives**

<b>Cultural Resource Description</b>	<b>Proposed Action</b>	<b>Carson River Transmission Alternative A</b>	<b>Carson River Transmission Alternative C</b>
Prehistoric Site	97	87	117
Historic Site	47	49	52
Multi-component Site	18	18	27
Unknown age Site	3	3	0
NRHP Listed	0	0	2
NRHP Eligible	61	61	63
NRHP Unevaluated	8	8	6
NRHP Not Eligible	96	88	125
Adverse Effects (NHPA)	45	44	57
No Adverse Effects (NHPA)	15	15	8
No Effects (NHPA)	105	98	131
<b>Site Totals</b>	<b>165</b>	<b>157</b>	<b>196</b>

*Table Acronym(s):* DAPE – Direct Area of Potential Effects; NHPA – National Historic Preservation Act; NRHP – National Register of Historic Places; VAPE – Visual Area of Potential Effects

A total of 196 sites were identified within the DAPE for Carson River Transmission Alternative C and/or analyzed for visual effects. Of these, 125 resources identified within the DAPE were determined not eligible and would not be affected under NHPA. An additional six resources within the VAPE were determined to have no effect visually under NHPA. Of the remaining sites, 8 resources were determined to not be adversely affected physically or visually and no further consideration of the Carson River Transmission Alternative C impacts is warranted. Fort Churchill, a National Historic Landmark listed in the NRHP, is outside the DAPE but was assessed for visual effects. Fort Churchill would be approximately 1.9 miles from one of the lines associated with Carson River Transmission Alternative C (Fort Churchill to Comstock Meadows #2 line); the other two lines would not be visible from the National Historic Landmark. The transmission line would be backdropped against highly variable landforms and soils and blend in with the surrounding landscape. Fort Churchill National Historic Landmark would not be visually adversely affected. In total, the BLM has determined that up to 57 sites could be adversely affected by the Carson River Transmission Alternative C. Of the 57 sites that could be adversely impacted, 22 sites could be physically affected, 32 sites could be physically and visually affected, and 3 sites could be visually affected. Sites that could be adversely affected include features of ceremonial significance, artifact scatters with data potential, a ranch, and an irrigation feature. Fort Churchill is a National Historic Landmark within the VAPE of the Carson River Transmission Alternative C and was determined to have no adverse effect.

The DAPE for the Carson River Alternative C contains approximately 1,760 acres of private and/or non-accessible lands. The cultural sensitivity GIS model predicted the probability that 485 acres of those private lands would have high sensitivity, 610 acres would have medium sensitivity, and 665 acres would have low sensitivity.

A total of 165 sites were identified within the DAPE for the Proposed Action and/or analyzed for visual effects. Of these, 96 resources identified within the DAPE were determined not eligible and would not be affected under NHPA. An additional nine resources within the VAPE were determined to have no effect visually under NHPA. Of the remaining sites, 15 resources were determined to not be adversely affected

physically or visually and no further consideration of the GLWP’s impacts is warranted. In total, the BLM has determined that up to 45 sites could be adversely affected by the Proposed Action. Of the 45 sites that could be adversely impacted, 21 sites could be physically affected, 12 sites could be physically and visually affected, and 12 could be visually affected. Sites that could be adversely affected include features of ceremonial significance, artifact scatters with data potential, a ranch, a road, and irrigation features.

The DAPE for the Proposed Action contains 3,265 acres of private and/or non-accessible lands. The cultural sensitivity GIS model predicted the probability that 1,139 acres of those lands would have high sensitivity, 1,255 acres would have medium sensitivity, and 871 acres would have low sensitivity. All of the Carson River Transmission Alternatives would adversely affect historic properties; however, Carson River Transmission Alternative A would impact the least number.

### 3.6.6.10 Direct and Indirect Impacts of Amargosa and Esmeralda Substation Groups and Fort Churchill and Northwest Substations

#### **Construction, Operations and Maintenance, and Decommissioning**

Cultural resources within the DAPE for the Amargosa and Esmeralda Substation Alternatives and the Fort Churchill and Northwest Substations and those cultural resources subjected to visual effects analysis within the corresponding VAPE are listed in Table 3-51 and Table 3-52.

The entire DAPE for AS-1 was surveyed and a total of four sites were identified within the DAPE and/or analyzed for visual effects. All four resources identified within the DAPE are determined not eligible and would not be affected under NHPA. The entire DAPE for the AS-2 (Proposed Action) was surveyed and a total of two sites were identified. Both sites are artifact scatters with data potential. The BLM has determined they would be adversely affected physically. For the Amargosa Substation Alternatives, AS-1 would impact the least number of historic properties.

**Table 3-51. Cultural Resources DAPE and VAPE Summary for the Amargosa and Esmeralda Substation Alternatives**

<b>Cultural Resource Description</b>	<b>AS-1</b>	<b>AS-2 (Proposed Action)</b>	<b>ES-1</b>	<b>ES-2 (Proposed Action)</b>	<b>ES-3</b>
Prehistoric Site	2	2	0	0	1
Historic Site	2	0	1	1	4
Multi-component Site	0	0	0	0	1
Unknown Age Site	0	0	0	0	0
NRHP Listed	0	0	0	0	0
NRHP Eligible	0	2	0	0	2
NRHP Unevaluated	0	0	0	0	0
NRHP Not Eligible	4	0	1	1	4
Adverse Effects (NHPA)	0	2	0	0	1
No Adverse Effects (NHPA)	0	0	0	0	1
No Effects (NHPA)	4	0	1	1	4
<b>Site Totals</b>	<b>4</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>6</b>

*Table Acronym(s):* AS – Amargosa Substation; DAPE – Direct Area of Potential Effects; ES – Esmeralda Substation; NHPA – National Historic Preservation Act; NRHP – National Register of Historic Places; VAPE – Visual Area of Potential Effects

**Table 3-52. Cultural Resources DAPE and VAPE  
Summary for the Fort Churchill and Northwest Substations**

Cultural Resource Description	Fort Churchill and Northwest Substations
Prehistoric Site	11
Historic Site	7
Multi-component Site	1
Unknown Age Site	1
NRHP Listed	0
NRHP Eligible	3
NRHP Unevaluated	1
NRHP Not Eligible	16
Adverse Effects (NHPA)	0
No Adverse Effects (NHPA)	4
No Effects (NHPA)	16
<b>Site Totals</b>	<b>20</b>

*Table Acronym(s):* DAPE – Direct Area of Potential Effects; NHPA – National Historic Preservation Act; NRHP – National Register of Historic Places; VAPE – Visual Area of Potential Effects

The entire DAPE for the ES-2 (Proposed Action) was surveyed and only one site was identified. This site was determined not eligible. Likewise for ES-1, the entire DAPE was surveyed and only one not eligible site was identified. Neither would be affected under NHPA. The entire DAPE for ES-3 was surveyed and a total of six sites were identified within the DAPE and/or analyzed for visual effects. Of these, four resources identified within the DAPE were determined not eligible and would not be affected under NHPA. The BLM has determined that of the remaining two sites, one could be adversely affected physically and the other would have no adverse effects. Both ES-1 and ES-2 (Proposed Action) for the Esmeralda Substation Alternatives would have the least impact to historic properties.

The Fort Churchill Substation was surveyed for cultural resources and a portion of the Northwest Substation expansion was surveyed for cultural resources. A total of 20 sites were identified within the DAPE and/or analyzed for visual effects. Of these, 16 resources identified within the DAPE were determined not eligible and would not be affected under NHPA. The BLM has determined that the remaining four sites would have no adverse effects.

The DAPE for the new Fort Churchill Substation and the Northwest Substation expansion contains 19 acres of private and/or non-accessible land and that was not surveyed for cultural resources. The cultural sensitivity GIS model demonstrates that all approximately 19 acres of those lands would have medium sensitivity.

### **3.6.6.11 Direct and Indirect Impacts from Amargosa Microwave Group**

#### **Construction, Operations and Maintenance, and Decommissioning**

Cultural resources within the DAPE for the AM-1 and AM-2 (Proposed Action) and associated distribution line options were recorded during the Class III inventory. Those cultural resources that were subject to visual effects analysis within the corresponding VAPE are listed in Table 3-53. Distribution lines associated with AM-1 have not yet been identified by the Proponent.

**Table 3-53. Cultural Resources DAPE and VAPE Summary for the Amargosa Microwave Alternatives and Associated Distribution Line Options**

<b>Cultural Resource Description</b>	<b>AM-1</b>	<b>AM-2 (Proposed Action)</b>	<b>AM-2 (Proposed Action) Distribution Line Option 1</b>	<b>AM-2 (Proposed Action) Distribution Line Option 2</b>
Prehistoric Site	0	0	0	0
Historic Site	0	0	1	1
Multi-component Site	0	0	0	0
Unknown Age Site	0	0	0	0
NRHP Listed	0	0	0	0
NRHP Eligible	0	0	0	0
NRHP Unevaluated	0	0	0	0
NRHP Not Eligible	0	0	1	1
Adverse Effects (NHPA)	0	0	0	0
No Adverse Effects (NHPA)	0	0	0	0
No Effects (NHPA)	0	0	1	1
<b>Site Totals</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>

*Table Acronym(s):* AM – Amargosa Microwave; DAPE – Direct Area of Potential Effects; NHPA – National Historic Preservation Act; NRHP – National Register of Historic Places; VAPE – Visual Area of Potential Effects

No cultural resources or historic properties were located within the DAPE for AM-1 or AM-2 (Proposed Action). Therefore, neither Amargosa Microwave Alternative would impact historic properties.

Approximately six acres of private land within the DAPE for AM-1 was not surveyed for cultural resources. The cultural sensitivity GIS model demonstrates that all of those lands would be low sensitivity. Class I research indicates that no previously recorded sites are located in this area.

Only the distribution lines associated with the AM-2 (Proposed Action) site are considered in the visual effects analysis. The entire AM-2 (Proposed Action) site was surveyed. The entire DAPE for the AM-2 (Proposed Action) Distribution Line Option 1 was surveyed and only one site was identified. This site was determined not eligible. Similarly, AM-2 (Proposed Action) Distribution Line Option 2, the entire DAPE was surveyed, and the same not eligible site was identified. This site would not be affected under NHPA by either option.

### **3.6.6.12 Impacts of Anti-Perching/Nesting Mitigation Measure**

#### **Construction, Operations and Maintenance, and Decommissioning**

Refer to Additional Measures to Avoid and/or Minimize Impacts for Bi-State sage-grouse and Mojave desert tortoise in Section 3.1.4.2 for detailed information regarding this mitigation measure. There would be more ground disturbance created by the additional H-frame structures which may cause additional physical effects to cultural resources/historic properties. The anti-perching/nesting mitigation measure may have direct effects on cultural resources/historic properties. The 525-kV H-frame structures would be more visually intrusive than the guyed lattice structures depending on the distance from the historic properties and visibility conditions, which may result in additional visual effects to historic properties. The visual effect analysis indicates that up to 13 additional historic properties throughout the VAPE could be adversely affected through the use of H-frame towers instead of lattice towers. The exact number of historic properties that may be affected is unknown at this time; however, the Proponent would avoid physical effects to historic properties to the extent practicable through micro-siting.



### 3.6.6.13 Measures to Avoid and/or Minimize Impacts

The GLWP would result in direct effects to cultural resources, some of which may adversely affect historic properties. Mitigation does not reduce adverse effects to historic properties, but under NHPA it does resolve the effects through the recovery of important archaeological and historical data. Adverse effects to NRHP-eligible cultural resources resulting from construction of the GLWP would be mitigated according to the procedures outlined in the HPTP (Appendix K) developed for the GLWP. Measures to avoid, minimize, or mitigate effects are determined on a site-by-site basis and may include a combination of avoidance, monitoring, or mitigation. Appendix K offers treatment measures for each site that may be adversely affected by the GLWP. The BLM would commit to treatment measures in the ROD consistent with 36 CFR 800.8(c)(4); no separate agreement documents (i.e., memorandum of agreement or programmatic agreement) would be required.

Avoidance is the primary strategy to avoid physical effects to cultural resources. The buffered boundaries of historic properties and unevaluated resources have been provided to the Proponent to assist with micro-siting to avoid as many historic properties and unevaluated resources as practicable. For example, historic properties that may be adversely affected by improving or constructing access roads for the GLWP could be avoided by rerouting access roads away from historic properties. Historic properties in the ROW eligible under Criterion D would be adversely affected by the construction of a transmission line structure within the site boundaries. However, micro-siting of the transmission line to span over the site to avoid direct physical effects could be implemented to avoid an adverse effect from direct physical disturbance. The 525-kV and 345-kV structures have a span range of 500 feet to 2,500 feet with a typical span of 1,200 feet (averaging 4 to 5 structures per mile). Historic properties would be spanned to the extent practicable to avoid physical adverse effects. While avoidance and mitigation are not required for non-eligible cultural resources under NHPA, the Proponent would avoid these resources to the extent practicable per the request of Tribes.

If NRHP-eligible properties cannot be avoided by ground-disturbing activities, they would be monitored during construction activities and/or subject to mitigation prior to construction. During construction, all NRHP-eligible properties within the DAPE would be flagged with a 98-foot buffer. Any GLWP activities within the flagged boundary would be monitored by a professional archaeologist to ensure that construction crews stay on approved roads, surface artifacts and features would not be disturbed by construction, and construction crews stop work in the event of an unanticipated discovery. In some instances, monitoring of construction activities may be all that is needed to avoid or minimize adverse effects to sites. In addition to avoidance and archaeological monitoring, treatment methods identified in the HPTP (Appendix K) include:

- Tribal monitoring for all construction activities throughout the GLWP regardless of the presence of historic properties
- Cultural sensitivity training for construction workers; trainers would include Tribes and archaeologists
- Tribal ceremonies before, during, and/or after the project
- Archaeological excavation limited to areas of planned ground disturbance, no excavation outside of planned disturbance areas, no excavation or disturbance of Native American rock features

- Preparation of a general online Western Nevada History Interactive Map
- Ethnographic studies

Table 3-54 illustrates appropriate measures to avoid, minimize, and/or mitigate any GLWP effects.

**Table 3-54. GLWP Effects and Mitigation Measures for Each Criterion of Significance**

<b>Criterion of Significance</b>	<b>GLWP Effect</b>	<b>Mitigation Measures</b>
A (event)	None: avoidance through design	Archaeological and/or Tribal monitoring may be required for construction activities within 98 feet
A (event)	The GLWP may affect non-eligible portion of resource	Monitor all construction activities within the site plus a 98-foot buffer
A (event)	Adverse effects to resource cannot be avoided	Archival research, ethnographic research, and oral history interviews to develop a historic context suitable for the public and/or Tribe Development of interpretive materials Monitor all construction activities within the site plus a 98-foot buffer if warranted
B (people)	None: avoidance through design	Archaeological and/or Tribal monitoring may be required for construction activities within 98 feet
B (people)	The GLWP may affect non-eligible portion of resource	Monitor all construction activities within the site plus a 98-foot buffer
B (people)	Adverse effects to resource cannot be avoided	Archival research, ethnographic research, and oral history interviews to develop a historic context suitable for the public and/or Tribe Development of interpretive materials Monitor all construction activities within the site plus a 98-foot buffer if warranted
C (design)	None: avoidance through design	Archaeological and/or Tribal monitoring may be required for construction activities within 98 feet
C (design)	The GLWP may affect non-eligible portion of resource	Monitor all construction activities within the site plus a 98-foot buffer
C (design)	Adverse effects to resource cannot be avoided	Archival research, ethnographic research, and oral history interviews to develop a historic context suitable for the public and/or Tribe LiDAR, photogrammetry, and/or Dstretch photography for archaeological sites Architectural documentation Development of interpretive materials Monitor all construction activities within the site plus a 98-foot buffer if warranted
D (data)	None: avoidance through design	Archaeological and/or Tribal monitoring may be required for construction activities within 98 feet
D (data)	The GLWP may affect non-eligible portion of resource	Monitor all construction activities within the site plus a 98-foot buffer
D (data)	Adverse effects to resource cannot be avoided	Archaeological data recovery: Intensive surface mapping and artifact inventory If there is potential for buried deposits, excavate test areas that will be disturbed by construction of the GLWP and expose and fully excavate any encountered features Monitor all construction activities within the site plus a 98-foot buffer if warranted

**Table 3-54. GLWP Effects and Mitigation Measures for Each Criterion of Significance  
(continued)**

<b>Criterion of Significance</b>	<b>GLWP Effect</b>	<b>Mitigation Measures</b>
Unevaluated	None: avoidance through design	Archaeological and/or Tribal monitoring may be required for construction activities within 98 feet
Unevaluated	The GLWP may affect non-eligible portion of resource	Monitor all construction activities within the site plus a 98-foot buffer
Unevaluated	Adverse effects to resource cannot be avoided	Archaeological testing Excavate test units in areas that will be disturbed by construction of the GLWP and if subsurface deposits are present and the site is eligible for the NRHP, proceed to archaeological data recovery For built environment resources (buildings and structures), conduct additional archival research to determine eligibility. If the resource is eligible for the NRHP, proceed with mitigation measures for the applicable criterion of significance

*Table Acronym(s):* GLWP – Greenlink West Transmission Project; NRHP – National Register of Historic Places

### **3.7 Native American Religious Concerns**

This section discusses Native American concerns, including religious and non-religious, identified during the NEPA process. The section addresses the regulatory context, consultation and coordination, analysis area and methodology, affected environment, identification of Native American religious concerns, impacts, and measures to avoid, minimize, and/or mitigate impacts to resources of Native American religious concern.

#### **3.7.1 Issues Identified for Analysis**

- What areas or resources are of special significance to Tribes?
- Are there sacred sites or TCPs that could be affected by construction, O&M, and decommissioning of the GLWP? If so, how could these effects be resolved, avoided, minimized, or mitigated?
- Would construction, O&M, and decommissioning of the GLWP restrict Tribal members’ access to sacred sites?

#### **3.7.2 Regulatory Context**

##### **3.7.2.1 American Indian Religious Freedom Act**

The 1978 American Indian Religious Freedom Act (AIRFA) protects and preserves Native Americans groups’ inherent right of freedom to believe, express, and exercise their traditional religions including but not limited to access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites. It also directs federal agencies to evaluate policies and procedures in consultation with Native American traditional religious leaders in order to determine appropriate changes necessary to protect and preserve Native American religious cultural rights and practices.

### **3.7.2.2 Executive Order 13007, Indian Sacred Sites**

Executive Order 13007 (Indian Sacred Sites) was passed in 1996 and calls for federal agencies to accommodate access to and ceremonial use of Native American sacred sites and avoid adversely affecting the physical integrity of sacred sites. The EO defines sacred site as:

... any specific, discrete, narrowly delineated location on federal land that is identified by an Indian Tribe, or Indian individual determined to be an appropriately authoritative representative of and Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site.

Procedures set forth in EO 13007 state that federal agencies shall implement procedures to carry out the provisions of the order and provide reasonable notice of proposed actions or land management policies that may restrict access or use of or adversely affect sacred sites.

### **3.7.2.3 The National Historic Preservation Act**

As discussed in the Section 3.6 Cultural Resources, the 1966 NHPA marked a new era of federal historic preservation after years of urban renewal resulted in the loss of many historic buildings across the country. The NHPA included many components, such as establishing SHPOs, THPOs, and the ACHP; authorizing the NRHP; and introducing Section 106, among other inclusions. Section 106 of the NHPA requires federal agencies to take the effects of their undertakings on historic properties into account and offer the ACHP a reasonable opportunity to comment. The GLWP is considered a federal undertaking subject to the compliance requirements of Section 106 of the NHPA. The NHPA is relevant to Native American concerns because it considers TCPs eligible for listing in the NRHP and subject to compliance with Section 106.

### **3.7.3 Consultation and Coordination**

Government-to-government consultation between the BLM and federally recognized Native American Tribes is ongoing pursuant to the 1994 Government-to-Government Relations with Native American Tribal Governments Executive Memorandum and BLM Manual 1780. As such, the BLM has and continues to consult and coordinate with interested Tribes for the GLWP. The BLM has invited Native American Tribes to public workshops, facilitated government-to-government consultation, coordinated GLWP meetings with Native American Tribes, and presented GLWP updates to Tribal Councils (refer to Chapter 5 Consultation and Coordination for more detailed information). Additionally, the BLM has engaged with Native American Tribes through the NHPA Section 106 process, including consultation, use of Tribal monitors during fieldwork, and archaeological site visits with Tribal representatives (refer to Section 3.6 Cultural Resources for more information on Section 106 consultation and coordination). Refer to Table 5-1 for a list of consulted Native American Tribes.

The Native American Tribes most actively participating in NHPA Section 106 and government-to-government consultation are the Duckwater Shoshone Tribe, Walker River Paiute Tribe, Timbisha Shoshone Tribe, and Moapa Band of Paiute Indians. The Hopi Tribe, Kaibab Band of Paiute Indians, Reno-Sparks Indian Colony, Chemehuevi, and the Washoe Tribe of Nevada and California have also expressed interest in the GLWP and have requested consultation on the cultural resources Class III inventory reports. The Walker River Paiute Tribe, Timbisha Shoshone Tribe, Moapa Band of Paiute Indians, Duckwater

Shoshone Tribe, and Chemehuevi Indian Tribe have expressed interest in participating in Tribal monitoring efforts during the GLWP construction.

### **3.7.4 Analysis Area and Methodology**

#### **Analysis Area**

The analysis area for Native American religious concerns consists of areas where consulted Native American Tribes may have concerns for resources, places, or other concepts which could be directly or indirectly affected by the GLWP. For the GLWP, the Native American religious concerns analysis area is the same as the NHPA Section 106 APEs for cultural resources. The total APEs for cultural resources and the Native American religious concerns analysis area is approximately 2,696 square miles (1,725,733 acres). The analysis area accounts for physical disturbances and watershed changes resulting from the GLWP. See Section 3.6 Cultural Resources for more details on how the analysis area was determined.

#### **Methodology**

The primary method to identify Native American religious concerns is Tribal consultation and coordination. Although consultation and coordination continue with Native American Tribes, a historic context was developed based on the Class I cultural resources inventory to identify archaeological/historical sites, ethnographic overviews, and TCP studies. This effort identified places significant to Tribes as reported in ethnographic literature and provides a background and a historic setting for Native American religious concerns identified during this process.

### **3.7.5 Affected Environment**

The Native American religious concerns analysis area is spread across lands traditionally and currently occupied by *Nuwuvi* (Southern Paiute), *Newe* (Western Shoshone), *Numu* (Northern Paiute), and *Wa She Shu* (Washoe). Established geographical divisions between these groups are used during this discussion, however these boundaries were often fluid and not all-encompassing of each group's territory. For a more detailed summary of their histories, see Section 3.6 Cultural Resources. Within the Native American religious concerns analysis area, *Nuwuvi* (Southern Paiute) lands include land generally east of the intersection between US 95 and SR 160 including Pahrump Valley south of the US 95 – SR 160 intersection. The Moapa Band of Paiutes has expressed interest in this area and requested Tribal monitors from the Moapa Band of Paiutes participate in the cultural resources inventory within those areas intersecting traditional *Nuwuvi* lands. The Proposed Action would also cross the Las Vegas Paiute Reservation - Snow Mountain just northwest of Las Vegas. The Native American religious concerns analysis area that crosses *Newe* (Western Shoshone) lands is west of the abovementioned intersection to the Esmeralda and Mineral County boundary. Several Western Shoshone Tribes are participating in the consultation process by including attending meetings, participating in field visits, and providing Tribal monitors during survey efforts. Additionally, Scotty's Junction Transmission Alternative B would cross the Timbisha Shoshone Reservation land. Within the Native American religious concerns analysis area, *Numu* (Northern Paiute) lands generally include land northwest of the Mineral and Esmeralda County line. Coordination between the BLM and the Walker River Paiute Tribe resulted in the participation of Tribal monitors during the cultural resources inventory within Mineral County, particularly during efforts on the Walker River Paiute Reservation. The Proposed Action would cross the Walker River Indian Reservation east and north of Walker Lake. *Wa She Shu* (Washoe) lands that the GLWP would cross are west of Mason Valley and south of I-80.

### 3.7.5.1 Identification of Native American Religious Concerns

Native American Tribes expressed several religious concerns during the consultation process, including impacts to the Salt Song Trail in southern Nevada, modern prayer locations along US 95 in Nye and Esmeralda counties, archaeological sites with rock features and rock writing, impacts at TUSK, and impacts to the viewshed from the Las Vegas Paiute pow wow grounds. Coordination and consultation identified additional Tribal concerns. These concerns included the lack knowledge and understanding regarding the land; inability to identify resources; and the potential to encounter unknown or previously unidentified resources with special affiliation to the respective Tribe(s) by construction workers. Concerns regarding potential impacts to Mojave desert tortoise and the potential upcoming expansion of Tribal lands that may be impacted by the GLWP were also discussed. No formal TCPs have been identified in the Native American religious concerns analysis area.

The Salt Song Trail is not considered a historic property for the purposes of Section 106, but it is a corridor with cultural importance and often mentioned in reference to known and potential TCPs (Duer 2012). The Salt Songs are sacred to the *Nuwuvi* (Southern Paiute) and are sung for various ceremonies and in times of mourning. These songs reference many places within the spiritual and physical landscape throughout traditional *Nuwuvi* territory and retrace trails and journeys between these locations (Cultural Conservancy 2022). The precise locations and extents of the Salt Song Trail and associated sites have not been thoroughly documented at present, but places near the Native American religious concerns analysis area include *Nuva Kaiv* (Charleston Peak, approximately 19 miles from the Proposed Action and approximately 16 miles from the Native American religious concerns analysis area) and *Naga Kaiv* (Sheep Mountain, approximately 14 miles from the Proposed Action and approximately 11 miles from the Native American religious concerns analysis area) (Duer 2012).

The presence of modern in-use prayer locations and avoidance measures were discussed with Tribal representatives from the Timbisha Shoshone Tribe and Duckwater Shoshone Tribe. These locations occur along US 95 between Tonopah and Las Vegas and were established by a medicine person for use during annual prayer walks. Tribal representatives recommended not obstructing the eastern view from these locations. They also requested that the GLWP be constructed so that it would not cause auditory disturbances during ceremonial practices. Two known prayer locations were identified during the Class III cultural resources inventory. One is within the temporary ROW area for Proposed Action transmission line, and one is outside the temporary ROW area. There are also additional unknown prayer locations. These generally occur along US 95 outside of the DAPE.

Prior to the cultural resources inventory, several site/feature types of cultural significance to the Duckwater Shoshone Tribe (and other Western Shoshone groups) were brought to the attention of the BLM. These sites/features (e.g., stacked rocks, rock rings, rock placements, tonal rocks) were identified during the cultural resources inventory. A few of these sites were visited by representatives from the BLM, the Timbisha Shoshone Tribe and the Duckwater Shoshone Tribe and were recognized as spaces of spiritual and cultural importance. These sites were asked to be avoided by direct physical and visual effects. Sites containing petroglyphs were also identified as spiritually important and were asked to be avoided by direct physical effects. Although a concern for Native American Tribes, these features, site types, and places are considered cultural resources and therefore are addressed through the Section 106 process. Further detail regarding these site types, their relative location to components of the GLWP, and potential resolution of effects are discussed in the Section 3.6 Cultural Resources.

The Moapa Band of Paiute Indians noted that their original reservation, established in 1873, included over 2.5 million acres of land, much of which is now managed by federal agencies. The Moapa Band of Paiute Indians expressed concern about the GLWP impacting culturally sensitive areas in the TUSK. The portion of TUSK that may be physically impacted by the GLWP was surveyed for cultural resources. No cultural resources were identified. Although no archaeological sites were identified, there are culturally sensitive places in the TUSK. However, exact locations are not known and were not revealed through consultation or identified by the Moapa Band of Paiute Indians monitor present for the inventory.

Ethnographic literature, coupled with the results of the Class I and Class III inventories, and Tribal consultation suggest that the following geographic locations have cultural significance: the Spring Mountains/Mount Charleston, Salt Song Trail locales, Fortymile Canyon, Thirsty Canyon, Beatty Wash, Yucca Mountain Range, and Mount Grant. Archaeological site types that are especially important to Native American Tribes include resource-procurement sites in the Spring Mountains, settlement sites, storied rocks (rock writing sites), and sites with rock features. The Spring Mountains, Fortymile Canyon, and Thirsty Canyon are within the Native American religious concerns analysis area but would not be physically impacted by the GLWP. Portions of Beatty Wash and the Yucca Mountain Range are in the temporary and/or permanent ROW areas and may be physically impacted by the GLWP. The direct effects analysis was surveyed for cultural resources and identified sites of Native American significance have been documented and considered as part of the NHPA Section 106 process. Mount Grant is outside the visual effects analysis area and would not be impacted by the GLWP.

Native American general concerns include providing workers with cultural sensitivity training, accommodating Tribal monitors, and potential impacts to pending expansion of Tribal lands. Cultural sensitivity training for construction workers and any associated field workers on the GLWP would be implemented to provide education on topics such as cultural resources and environmental laws, best practices in the field regarding cultural and biological resources, and what to do in the event of an unanticipated cultural resources discovery. Training would help deter intentional and unintentional damage to resources. Native American Tribes also requested the presence of Tribal monitors during construction to help ensure that resources are not inadvertently impacted during construction, including but not limited to cultural resources, biological resources, and areas of Tribal concern. One Tribe expressed concerns about how the GLWP may affect the Mojave desert tortoise. Effects of the GLWP on the Mojave desert tortoise are addressed separately in Section 3.1 Federally Listed Species. Concerns regarding possible expansion of Tribal lands and how they may be impacted by the GLWP would be addressed on an individual basis through government-to-government consultation.

### **3.7.6 Environmental Consequences**

This section assesses the impacts on resources of Native American religious concern that would result from the No Action Alternative and from the construction, O&M, and decommissioning of the Action Alternatives. Impacts on those resources of concern expressed by consulted Native American Tribes are discussed below. Native American religious concerns involving cultural resources are discussed and addressed in Section 3.6 Cultural Resources.

### **3.7.6.1 Direct and Indirect Impacts from No Action Alternative**

It is anticipated that under the No Action Alternative, the current uses and trends for the resource would continue to occur. There would be no impacts to resources of religious or non-religious concern expressed by Native American Tribes attributed to the construction, O&M, and decommissioning of the GLWP under the No Action Alternative.

### **3.7.6.2 Direct and Indirect Impacts from Proposed Action**

#### **Construction and Operations and Maintenance**

Identified areas/resources of Native American religious concern include prayer locations, the Salt Song Trail, culturally sensitive areas in TUSK, and the Las Vegas Paiute Tribe's pow wow grounds. The GLWP may directly and/or indirectly impact some areas of Native American religious concern. Direct impacts would come from ground disturbance during construction, restricting access to sacred sites, and from visual changes due to new infrastructure. Ground-disturbing activities could have direct physical impacts on prayer sites such as displacement, damage, or destruction of features.

Construction activities that modify the slope of the natural terrain, compact soils, and/or remove vegetation could indirectly cause increased erosion of areas surrounding prayer sites. Other construction impacts may include temporary increased dust (atmospheric) and temporary audible effects (construction machinery). Construction of the transmission line and its associated infrastructure could change the visual setting and impact areas of concern. Indirect effects may also include the potential for illegal artifact collection, vandalism, or looting due to new or increased access to sites; increased visibility of sites; increased trash at new roads or pull-outs along US 95; or increased likelihood of additional lines being constructed in the same corridor.

Two modern prayer locations were identified during the Class III inventory of the Proposed Action. The transmission line structures, depending on their location relative to prayer sites, could alter the setting. Structures could cause visual obstruction in specific directions and audible impacts from the transmission of high energy power are also possible. Both prayer locations are situated close to US 95 and auditory effects would be greater from traffic, though exceptions under some conditions might apply (e.g., periods of low traffic, high winds). In addition, new and improved access roads would be maintained during O&M. These roads would be permanent, open to the public, and may also contribute indirectly to the creation of social (unauthorized) roads and trails, which may impact unknown prayer locations.

The first prayer location is approximately 50 feet west of US 95, 690 feet north of the Proposed Action transmission line, and approximately 150 feet from the nearest proposed new access road. With the implementation of the EMMs (Appendix C. EMMs CULT-1, CULT-2, CULT-4, CULT-7, and CULT-8) this prayer location would not be physically impacted by the GLWP. The Proposed Action would be approximately 1,285 feet east of the prayer location and within the eastern viewshed, backdropped by the Point of Rocks Mountains.

The second prayer location is approximately 190 feet west of US 95 and 135 feet west of the Proposed Action transmission line. This prayer location is the closest location in proximity of the Proposed Action and within the DAPE of the Proposed Action. Similar to the first prayer location, with the implementation of the EMMs (Appendix C. EMMs CULT-1, CULT-2, CULT-4, CULT-7, and CULT-8) this prayer location would not be physically impacted by the GLWP. When looking directly east from the prayer location, the



Proposed Action would be approximately 200 feet away where the line would span US 95 and would be directly within the eastern viewshed.

There are also concerns regarding potential impacts to the Salt Song Trail from construction of the GLWP. Because there is no physical evidence of the Salt Song Trail, it is difficult to identify direct or indirect impacts from the GLWP or any tangible measures to avoid or minimize impacts to the Salt Song Trail. The BLM will continue to consult with Southern Paiute Tribes, who hold the Salt Song Trail sacred, to identify and address potential effects through government-to-government consultation. Continued consultation with the Tribes will allow the BLM to further understand potential impacts from the GLWP might have and identify ways to avoid or minimize them.

The Moapa Band of Paiutes initially expressed concern about the GLWP impacting culturally sensitive areas in the TUSK. No archaeological sites were identified during the cultural resources inventory. The BLM continued Tribal consultation under Section 106 and through government-to-government consultation. As the BLM shared more information about the project through consultation, no specific Native American concerns within the TUSK were identified. The GLWP is not anticipated to have impacts on culturally sensitive areas within TUSK.

The Proposed Action transmission line would be located approximately 750 feet west of the Las Vegas Paiute Tribe pow wow grounds at Snow Mountain. The Proposed Action would not physically impact the location but would introduce a new transmission line in the foreground looking west. However, there is already an existing transmission line in the immediate vicinity.

Currently, no prayer locations or other physical resources of Native American religious concern fall within the temporary or permanent ROW areas for the Proposed Action's distribution lines, amplifier sites, or material yards. Prayer locations would not be impacted by these components. The GLWP has the potential to result in impacts to at least two identified prayer locations. Impacts to the prayer locations can be resolved through implementation of the EMMs (Appendix C), avoidance of ground disturbance through final design, micro-siting, and having a Tribal monitor present during construction. Additionally, the Proposed Action would not alter or restrict access to Tribal sacred sites.

### **Decommissioning**

A Reclamation Plan and a Decommissioning Plan would be filed by the Proponent and approved by the federal ROW agencies before terminating the ROW and beginning decommissioning activities. Impacts during decommissioning would be similar to those described for the construction phase, though to a lesser extent.

### **Measures to Avoid, Minimize and/or Mitigate Impacts**

Both identified prayer locations would avoid direct effects through design, micro-siting, and having a Tribal monitor present during construction. With the implementation of EMMs (Appendix C. EMMs CULT-1, CULT-2, CULT-4, CULT-7, and CULT-8), including Tribal monitors and cultural sensitivity training, no additional measure to avoid and/or minimize impacts to Native American religious concerns are recommended for the Proposed Action.

### **3.7.6.3 Direct and Indirect Impacts from Losee, TUSK, Beatty, Mason Valley WMA, and Carson River Transmission Line Route Groups; Amargosa and Esmeralda Substation Groups; and Amargosa Microwave Group**

#### **Construction, Operations and Maintenance, and Decommissioning**

Native American religious concerns that would fall within the temporary or permanent ROWs or would be otherwise impacted by the Losee, TUSK, Beatty, Mason Valley WMA, or Carson River Transmission Alternatives; the Amargosa and Esmeralda Substation Alternatives; or the Amargosa Microwave Alternatives would be the same as the Proposed Action.

### **3.7.6.4 Direct and Indirect Impacts from Scotty's Junction Transmission Line Route Group**

#### **Construction, Operations and Maintenance, and Decommissioning**

One of the prayer locations was identified within the Scotty's Junction Transmission Alternatives. This prayer location would be avoided by direct effects during final design and micro-siting. Additionally, a Tribal monitor would be present during construction to assist with avoidance. The prayer location is between Scotty's Junction Transmission Alternative B and the Proposed Action. This site is approximately 135 feet west of the Proposed Action, 190 feet west of US 95, 170 feet east of Scotty's Junction Alternative B, and approximately 1.4 miles east of Scotty's Junction Transmission Alternative A. With the implementation of EMMs, there would be no direct physical impact to the prayer location. However, through coordination, Tribes have expressed concerns with obstructing views to the east of any prayer location. Only the Proposed Action would impact eastern views from the prayer location. Scotty's Junction Transmission Alternatives A and B would be west of this prayer location and would not obstruct eastern views.

This prayer location would be most impacted by the Proposed Action due to the obstruction of eastern views, impacted to a lesser degree by Scotty's Junction Transmission Alternative B due to proximity to the prayer location, and not impacted by Scotty's Junction Transmission Alternative A.

#### **Measures to Avoid, Minimize and/or Mitigate Impacts**

The prayer location would be avoided by direct effects through design micro-siting and having a Tribal monitor present during construction. With the implementation of EMMs (Appendix C. EMMs CULT-1, CULT-7, and CULT-8), including Tribal monitors and cultural sensitivity training, no additional measure to avoid and/or minimize impacts to Native American religious concerns are recommended for the Scotty's Junction Transmission Alternatives.

### **3.7.6.5 Impacts from Anti-Perching/Nesting Mitigation Measure**

#### **Construction, Operations and Maintenance, and Decommissioning**

Refer to Additional Measures to Avoid and/or Minimize Impacts for Bi-State sage-grouse and Mojave desert tortoise in Section 3.1.4.2 for detailed information regarding this mitigation measure. There would be more ground disturbance created by the additional H-frame structures. The H-frame structures may be more visually intrusive than the guyed lattice structures depending on the distance from the area of concern and visibility conditions. As a result, the anti-perching/nesting mitigation measure may have impacts on resources of Native American religious concern. The additional ground disturbance could result in impacts to areas of Native American religious concern, although GLWP component siting would aid in avoiding direct physical disturbances to areas of concern. There would be impacts similar to the guyed lattice structures from the H-frame structures to the views from the Las Vegas Paiute Reservation – Snow Mountain. Changes to views from either tower structure would range from negligible to visually

recognizable and beginning to attract attention. The BLM is conducting ongoing government-to-government consultation with Tribes to determine if any of these structures would have physical or visual effects on areas of religious concerns and identify ways to avoid, minimize, or mitigate impacts.

### **3.8 Paleontological Resources**

Paleontological resources are any fossilized remains, traces, or imprints of organisms preserved in or on the Earth's crust that provide information about the history of life on Earth (Paleontological Resources Preservation Act of 2009 (PRPA)). This section presents an overview of the paleontological resources that have the potential to occur within the GLWP area that may be affected by construction, O&M, and decommissioning of the GLWP and the impacts from the Action Alternatives and the No Action Alternative.

#### **3.8.1 Issues Identified for Analysis**

- How would construction, O&M, and decommissioning of the GLWP affect paleontological resources?

#### **3.8.2 Analysis Area and Methodology**

##### **Analysis Area**

The paleontological resources analysis area (paleontological analysis area) consists of a geographic area or areas in which paleontological resources may be directly or indirectly affected by the GLWP. This area is defined as a 300-foot buffer around the Action Alternatives, totaling approximately 74 square miles (47,462.4 acres).

##### **Methodology**

Activities that occur in or on geologic units that contain paleontological resources have the potential to affect those resources. Effects include resource damage or destruction and loss of data associated with the fossils. When paleontological resources are successfully recovered, however, new scientific discoveries can be initiated, and the public can be engaged through scientific education. Effects can also be categorized as anything that results from GLWP activities on the resource itself or secondary affects from GLWP activities, such as increased erosion resulting in the exposure of paleontological resources.

While the exact locations of ground disturbance are not known at this time (i.e., transmission structure locations), this analysis of effects takes into consideration that ground-disturbing activities would include grading for new access roads, excavating for tower installation, and trenching for underground fiber optic cable. This analysis also considers the possibility of subsurface geologic units having a different paleontological potential than surficial units. For example, younger surficial sediments (alluvium, lacustrine, eolian, etc.) usually have low potential to preserve paleontological resources due to their young age. However, sediments increase in age with depth, so these surficial deposits often overlie older units that have higher paleontological potential. In areas with this underlying geologic setting, surficial work may be of low risk for affecting paleontological resources, while activities that require disturbance below the depth of the surficial deposits would be at greater risk of affecting paleontological resources. For this reason, the analysis of effects takes into consideration both the surface and subsurface geology.

This analysis of effects relies on the BLM's Potential Fossil Yield Classification (PFYC) mapping of the GLWP area (BLM 2023a). The PFYC system provides an estimate of the potential abundance and significance of paleontological resources that may be found in a mapped geological unit and is used to help assess

possible resource impacts. The PFYC assignments are classified as being very low (PFYC 1), low (PFYC 2), moderate (PFYC 3), high (PFYC 4) to very high (PFYC 5) and unknown (PFYC U) paleontological potentials. This has been updated with the results of a paleontological resources assessment including an analysis of existing data and field survey of the high (PFYC 4) and very high (PFYC 5) geologic units mapped within the paleontological analysis area. Additionally, in September of 2022, ground-penetrating radar (GPR) studies were conducted in TUSK. These studies were conducted at the request of the NPS and the summary of findings from the GPR is discussed in Section 3.8.4.3.

This Final EIS/Proposed RMPA uses the PRPA definition of a paleontological resource as any fossilized remains, traces, or imprints of organisms preserved in or on the earth's crust, that are of paleontological interest and that provide information about the history of life on earth. The definition does not include: 1) any materials associated with an archaeological resource (as defined in Section 3[1] of the Archaeological Resources Protection Act of 1979 (16 USC 470bb[1]); or 2) any cultural item (as defined in Section 2 of the Native American Graves Protection and Repatriation Act [NAGPRA] [25 USC 3001]) (PRPA; Sec. 6301: Definitions).

The definition of the term "paleontological resources" in the PRPA limits paleontological resources to fossilized remains that are of paleontological interest and inform the history of life on earth, and therefore under the PRPA's definition not all fossils are considered paleontological resources. Only credentialed paleontologists (see 43 CFR Part 49) may determine what fossils have paleontological interest. It should be noted that the NPS has established that all fossils on NPS lands are considered paleontological resources and are considered for protection equally, regardless of perceived significance (NPS Organic Act of 1916 [54 USC § 100101]; NPS Management Policies 2006 § 4.8.2.1).

### **3.8.3 Affected Environment**

The paleontological analysis area is located in the Basin and Range geomorphic province. The Basin and Range is an enormous province, occupying the bulk of the western United States and into Mexico. It extends from the Sierra Nevada Mountains in the west, the Columbia Plateau in the north, into central Utah in the east, and ending in the south in the state of Sonoran, Mexico. This province is characterized by high geographic relief with steep mountain ranges separated by deep valleys, such as Death Valley, the lowest point in North America.

The general structure of the Basin and Range is a series of linear north-south-oriented mountain chains and intervening valleys that formed from crustal extension, or stretching, caused by the mountains rising at the subduction zone on the western border of the North American plate and a change in plate motion along the San Andreas Fault (Fiero 1986; Zoback 1989). These rift valleys form a vast terrain of structurally complex basins infilled with thick stacks of alluvial sediments eroded from the surrounding mountain ranges with superposed lacustrine (sedimentary rock formations that formed in the bottom of ancient lakes) and fluvial deposits (Parsons 2006), with the wetter climate of the Pleistocene leading to extensive lacustrine beds in what is now an arid climate (Bacon et al. 2006).

In general, the mountain ranges across the Basin and Range are composed of sedimentary rocks deposited in a nearshore marine environment that have since been usually slightly metamorphosed (Corsetti and Hagadorn 2003). The geologic units in the mountains across the Basin and Range date primarily from the Paleozoic and preserve important evolutionary periods in the history of life on earth. The Cambrian Explosion is an example of one of these important evolutionary periods when shallow seas were home to fossils of the first organisms to evolve hard shells at the beginning of an evolutionary radiation (Waggoner et al. 2005).

Mesozoic and Cenozoic deposits are less common than the older Paleozoic deposits that form the bulk of the mountain ranges in the Basin and Range. Cenozoic-aged deposits in the paleontological resources analysis area preserve terrestrial environments with heavy volcanic input (Norris and Webb 1990).

Locally, the GLWP would cross the western Basin and Range, extend from southeast to northwest, roughly paralleling the southern Nevada border and aligned almost perpendicular to the primary axis of most of the Basin and Range mountain ranges. The GLWP would cross several ranges including the Virginia Range, Pine Nut Mountains, Wassuk Range, Montezuma Range, Yucca Mountain, and Specter Range. These ranges conform to the overall geologic characterizations of the Basin and Range described above and are composed of thick series of nearshore marine sediments bounded by normal faults. The ranges are separated by a series of linear basins, as is typical across the Basin and Range, and include the Adrian Valley, Sarcobatus Flat, the Amargosa Desert, and the Las Vegas Valley. These linear basins are filled with sediments that are generally young at the surface, dating from the Holocene, but increase in age with depth. Older surficial sediments that date to the Pleistocene era are found along the edges of the valleys against the mountains and as scattered pockets within the mountains. These sediments are similar in lithology to the variety of younger Holocene sediments but are usually more compacted and show dissection from erosional processes.

Geologic mapping shows that the GLWP would cross a wide array of geologic units, from young surficial sediments to marine rocks that date to the Neoproterozoic, over 541 million years ago (MYA). The majority of the paleontological resources analysis area is mapped as Quaternary-aged (recent to 2.58 MYA) surficial sediments. The mapping of these units is highly variable and includes areas mapped as unknown, low, and moderate potential, as well as one unit with very high potential. A wide variety of volcanic igneous rocks with very low or unknown are also mapped in the paleontological analysis area, as well as lesser amounts of older Cenozoic (2.58-66.0 MYA) and Paleozoic (251-541 MYA) geologic units. These older units are highly variable in their paleontological potential, ranging from very low to high.

The paleontological analysis area is underlain by geologic units that range from very low to very high paleontological potential and also units with unknown paleontological potential (Table 3-55). Geologic units with low paleontological potential make up the highest percentage of the paleontological analysis area (40 percent), followed by unknown potential, including primarily surficial sediments and mixed volcanoclastic units (33 percent), and very low potential units (22 percent). Geologic units with higher potential would be much less common, with moderate, high, and very high units combined would make up less than six percent of the paleontological analysis area.

The geologic units with high and very high potential are of particular importance. These are, from youngest to oldest, the Las Vegas Formation (PFYC 5), the Esmeralda Formation (PFYC 4), the Poleta Formation (PFYC 4), and the Deep Spring Formation (PFYC 4). Table 3-55 shows a summary of the PFYC of geologic units that would underlie the paleontological analysis area.

**Table 3-55. Summary of the PFYC of the Geologic Units Underlying the Paleontological Resources Analysis Area**

<b>PFYC</b>	<b>Est. Acres</b>	<b>Percent</b>	<b>Geologic Units</b>
Very Low (PFYC 1)	1,664.1	7	Beatty Wash Formation; Belted Range Group, Volcanic rocks of Quartz Mountain; Crater Flat Group, Tram Tuff; granitic rocks; Hartford Hill Rhyolite Tuff; Latite of Donovan Mountain; metasedimentary rocks; Paintbrush Group, Tiva Canyon Tuff; Rainier Mesa Tuff, Timber Mountain Group; Rhyolite of Fleur-de-lis Ranch; Rhyolite of Fluorspar Canyon, Timber Mountain Group; Thirsty Canyon and younger basalts; Thirsty Canyon Group, younger landslide, gravity slide and talus breccia; Ammonia Tanks Tuff, Timber Mountain Group
Low (PFYC 2)	15,618.5	63	Alluvium, playa and floodplain deposits, sedimentary rocks, surficial deposits, surficial sediments, young alluvial deposits, young fan alluvium
Moderate (PFYC 3)	26.5	<1	Eleana Formation
High (PFYC 4)	0.0	0	None
Very High (PFYC 5)	48.8	<1	Las Vegas Formation
Unknown (PFYC U)	7,301.3	30	Andesitic Lavas (includes interflow tuffaceous sediments); Andesitic Rocks (includes interflow sediments); basalt and rhyolite (includes sedimentary interbeds); basin-fill sediments, undivided; Belted Range Group, older sedimentary rocks, undivided; Gravels of Oasis Valley; metavolcanic rocks; older alluvium; Post-Tiva Canyon rhyolites (includes non-welded tuff); proximal sedimentary rocks; sedimentary rocks, conglomerate; sediments and sedimentary rocks; young tuffs of the Pancake Caldera Complex
<b>Total</b>	<b>24,659.3<sup>a</sup></b>	<b>100</b>	<b>-</b>

*Table Acronym(s):* Est. – Estimated; GLWP – Greenlink West Transmission Project; PFYC – Potential Fossil Yield Classification

*Table Note(s):* <sup>a</sup>Discrepancy between the table total and the total for the paleontological analysis area is due to the presence of 4.0 acres of water and 4.6 acres of missing data.

The Las Vegas Formation dates from the early Holocene to the late Pleistocene and is famous for preservation of an abundant terrestrial fauna dubbed the Tule Springs local fauna (Springer et al. 2017). The TUSK was created for this fauna. The BLM has assigned the Las Vegas Formation very high paleontological potential (BLM 2023a). The abundance of fossils in the Las Vegas Formation is due in large part to its young age, as general younger geologic units preserve more abundant and diverse fossils than older geologic units. The Las Vegas Formation preserves one of the richest Rancholabrean collections in western North America (Hardy et al. 2015; Springer et al. 2017). The most abundant taxa in the fauna are mammoth and camel, while horse and bison are also common. Less numerous but an important constituent of the fauna are the fossils of carnivores including dire wolf, saber-toothed cat, and the American lion. A diverse assemblage of small mammals, birds, invertebrates, plant macrofossils, and pollen is also documented and contributes to the utility of the fauna as a whole to evaluate climate and environmental conditions (Reynolds and Mead 1991; Rowland and Bonde 2015; Simpson 1933; Springer et al. 2005; 2017; 2018; Spurr 1903). These fossils provide a detailed look at the preserved ecosystem, with invertebrates useful for environmental indicators preserved alongside the more well known megafauna (Springer et al. 2017). In the paleontological analysis area, the Las Vegas Formation is found in the southeastern-most area, mapped at the surface both within the bounds of TUSK and beyond on lands managed by the NPS, the BLM, local government agencies, and on private lands. During the GLWP pedestrian survey, non-significant fossils consisting of bone fragments were identified within the paleontological analysis area in the Las Vegas Formation (Stantec Consulting Services Inc. 2021).

The Esmeralda Formation dates to the Miocene and consists of alternating beds of tuffaceous shale, sandstone, and conglomerate with rhyolite flows (Albers and Stewart 1972) that have been assessed as having high paleontological potential due to the presence of significant fossils and the possibility of rare or uncommon fossils (BLM 2023a). The Esmeralda Formation is well known to preserve an excellent window into the paleoecology of the Miocene in this area, with both invertebrate, vertebrate, and plants preserved (Berry 1927; Firby 1963; Hardy et al. 2015; Starratt 1987). During the pedestrian survey, non-significant plant fossils consisting of nondiagnostic compressed leaves and stems were identified within the paleontological analysis area in the Esmeralda Formation (Stantec Consulting Services Inc. 2022a).

The Poleta Formation spans the boundary between the Proterozoic (or Precambrian) and the Cambrian and preserves fossils that are important for understanding the evolutionary transitions during this time period. The BLM (2023a) has assessed the Poleta Formation as having high potential. It consists of a thick bedded carbonate sequence that is overlain by green siltstone and limestone interbeds (Albers and Stewart 1972). Some of these localities have been recognized as *lagerstätten*, or localities, with exceptional quality of fossil preservation, including both abundant and diverse fauna with soft-bodied preservation (English and Babcock 2010; Hagadorn et al. 2000). Trilobite fossils were found in the Poleta Formation within the paleontological analysis area during the GLWP pedestrian survey (Stantec Consulting Services Inc. 2022a).

The Deep Spring Formation dates to the Neoproterozoic and consists of well-bedded limestone and dolomite with subordinate dark quartzite present (Albers and Stewart 1972) and has been assessed by the BLM (BLM 2023a) as having high paleontological potential for the preservation of significant fossils. These fossils include extensive microbialites, trace fossils from the first burrowing organisms, and small tubular fossils representative of some of the first shelled organisms to evolve (Anderson et al. 2005; Corsetti and Hagadorn 2003; Waggoner et al. 2005).

The majority of the moderate potential geologic units within the paleontological analysis area would be Paleozoic-aged marine geologic units that preserve common invertebrate fossils. Exceptions to this are the Kate Peak Formation, which preserves widely scattered vertebrate fossils, and the Bitter Ridge Limestone member of the Horse Springs Formation, which preserves common freshwater invertebrate fossils (BLM 2023a).

Geologic units with unknown potential are one of two general categories: surficial sediments that date to the Pleistocene or are of uncertain age or volcanoclastic units. Surficial sediments vary widely in lithology but are typically mapped as undivided alluvial units within the paleontological analysis area. Surficial sediments vary in their paleontological potential, with finer-grained facies more likely to preserve fossils than coarser-grained facies and Holocene-aged deposits too young to preserve fossils. The volcanoclastic units include both lava flows, which are unlikely to preserve fossils, and tuffaceous units, which could preserve fossils but require more study to ascertain their potential.

### **Tule Springs Fossil Beds National Monument**

The TUSK encompasses one of the largest and most diverse late Pleistocene vertebrate fossil assemblages in the southern Great Basin and Mojave Deserts. The TUSK is located in the paleontological analysis area and is found in the upper Las Vegas Wash, north of the cities of Las Vegas and North Las Vegas, and is bounded on the northeast by the Sheep and Las Vegas Ranges (NPS 2019a).

There are three categories of geologic deposits within the TUSK: 1) Pleistocene, groundwater discharge-related deposits, 2) alluvial fan deposits, and 3) recent upper Las Vegas Wash alluvial and fluvial deposits. Pleistocene deposits containing fossils of extinct Ice Age animals and plants and are composed of clay, silt, and fine sand that were deposited in spring-fed ponds, meadows, marshes, and streams in association with groundwater discharge events during periods of abundant rainfall (pluvials) in the Pleistocene Epoch (Ramelli et al. 2011). Erosion within the upper Las Vegas Wash has exposed sediments that also crop out on the upthrown side of the Eglington Fault scarp. The alluvial fan deposits consist mainly of Paleozoic-age carbonate sand and gravel; deposition began in the early Pleistocene Epoch and continues today as erosion continues. The recent upper Las Vegas Wash deposits are of the youngest deposits in the TUSK (NPS 2015; Ramelli et al. 2011).

### **Summary of Ground-Penetrating Radar Study Conducted in TUSK**

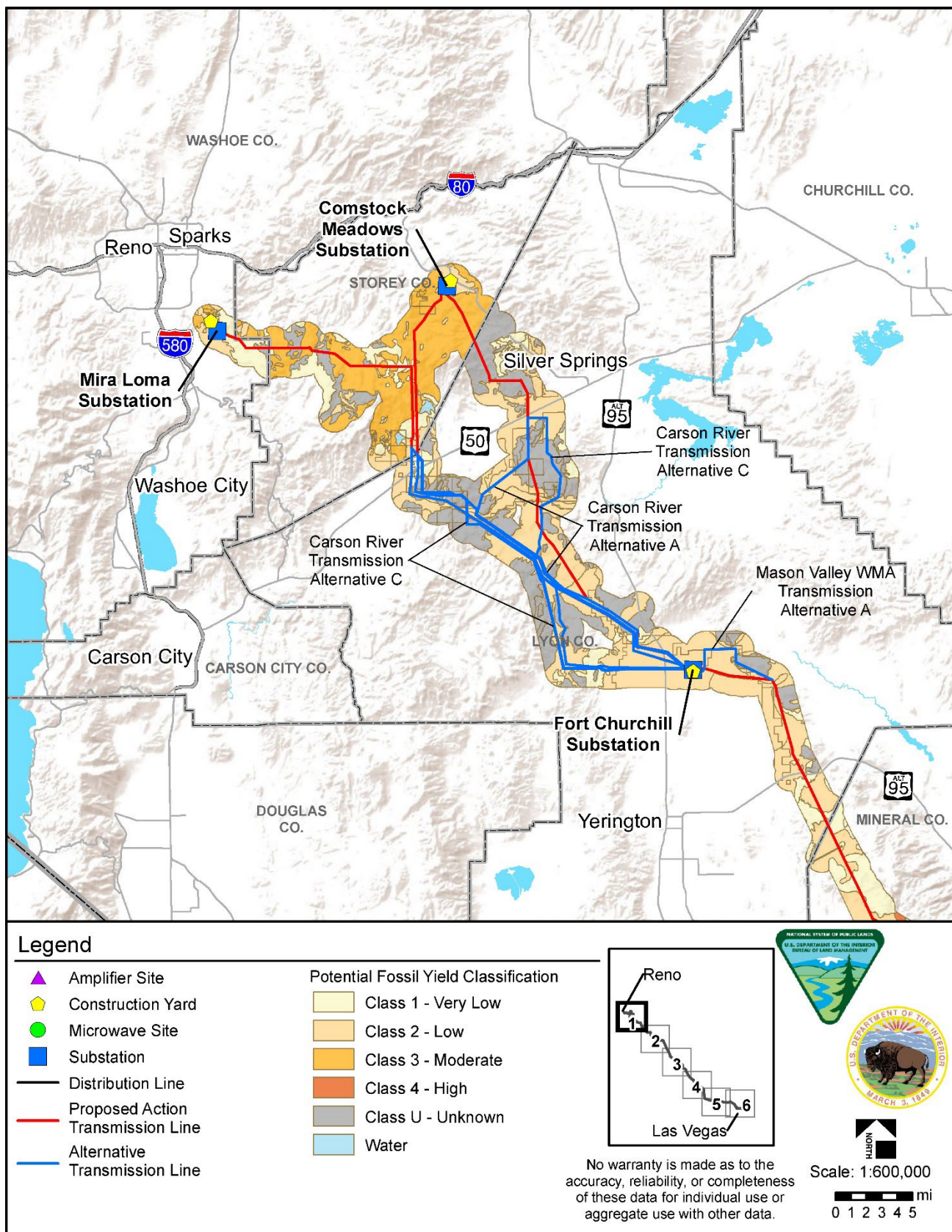
The NPS requested a study to use ground-penetrating radar within TUSK to assess if fossils could be detected by GPR technology in TUSK. Technology, such as GPR, has been successful in identifying subsurface bodies and trace fossils in other geologic settings, but had not been previously attempted in TUSK (Urban 2022). Subsidiary goals of the study were to gather additional information on how deep fossils could be detected, if capped-carbonate deposits blocked GPR's utility at detecting fossils, what size of fossils could be resolved, and the utility of radargrams versus three-dimensional (3-D) imagining in identifying fossils.

To address these study goals, GPR was applied at seven different locations within TUSK. Three locations were within the Proposed Action permanent ROW area and had already been the subject of a pedestrian survey (Stantec Consulting Services Inc. 2022b). At each of the three study locations within the Proposed Action permanent ROW area, anomalies were detected in the subsurface that were interpreted as indicative of the presence of fossils in the subsurface (Urban 2022). Data analysis indicated that the depth of these anomalies ranged from 1.6 feet to 32.8 feet below surface, the maximum depth tested. Fossils were not visible at the surface of any of the GPR study locations within the Proposed Action permanent ROW area. Additionally, 3-D imaging revealed that the anomalies at one of the GPR study locations within the Proposed Action permanent ROW area were consistent with the skull and limb bone of a member of the elephant family. Possible identifications were not provided for the anomalies at the other two GPR study locations. The GPR study also identified anomalies at four of the other locations outside of the Proposed Action permanent ROW area, two of which included vertebrate fossil remains visible at the surface. The results of the GPR study were characterized as identifying anomalies best explained as vertebrate fossils with successful identification of anomalies at depths of 32.8 feet. The GPR technology appears to be applicable to use on vertical surfaces, not inhibited by cap-carbonates, and with the most compelling results provided by 3-D imaging as opposed to radargrams alone (Urban 2022).

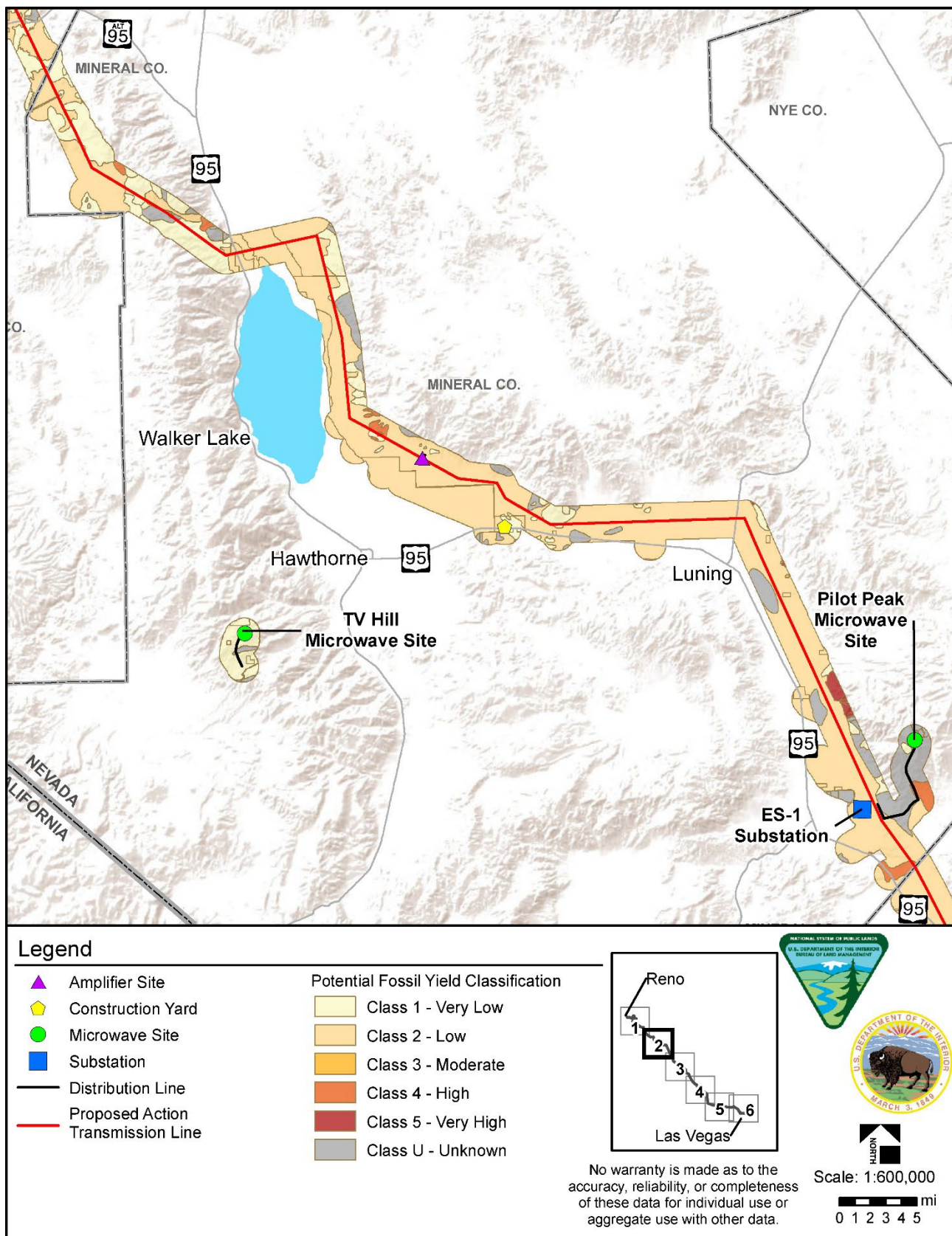
### **3.8.4 Environmental Consequences**

A comparison of each of the Action Alternatives is shown in Figure 3-13 through Figure 3-18. In general, the transmission alternatives would not cross areas of higher paleontological potential than the Proposed Action (i.e., an Action Alternative crossing an area of moderate paleontological potential or above and the Proposed Action crossing low potential or below). Most geologic units underling all of the Action Alternatives are assessed as having unknown potential.

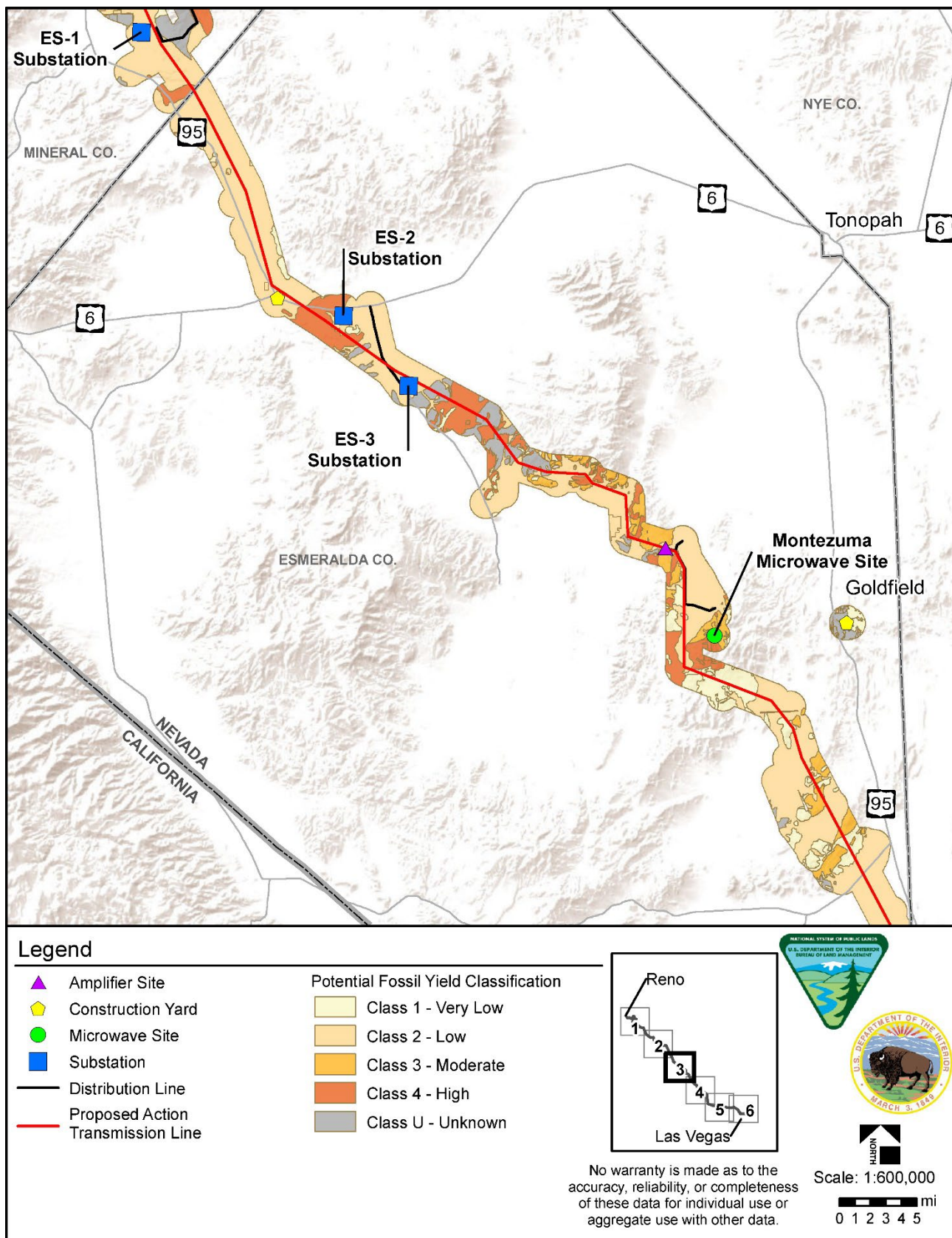




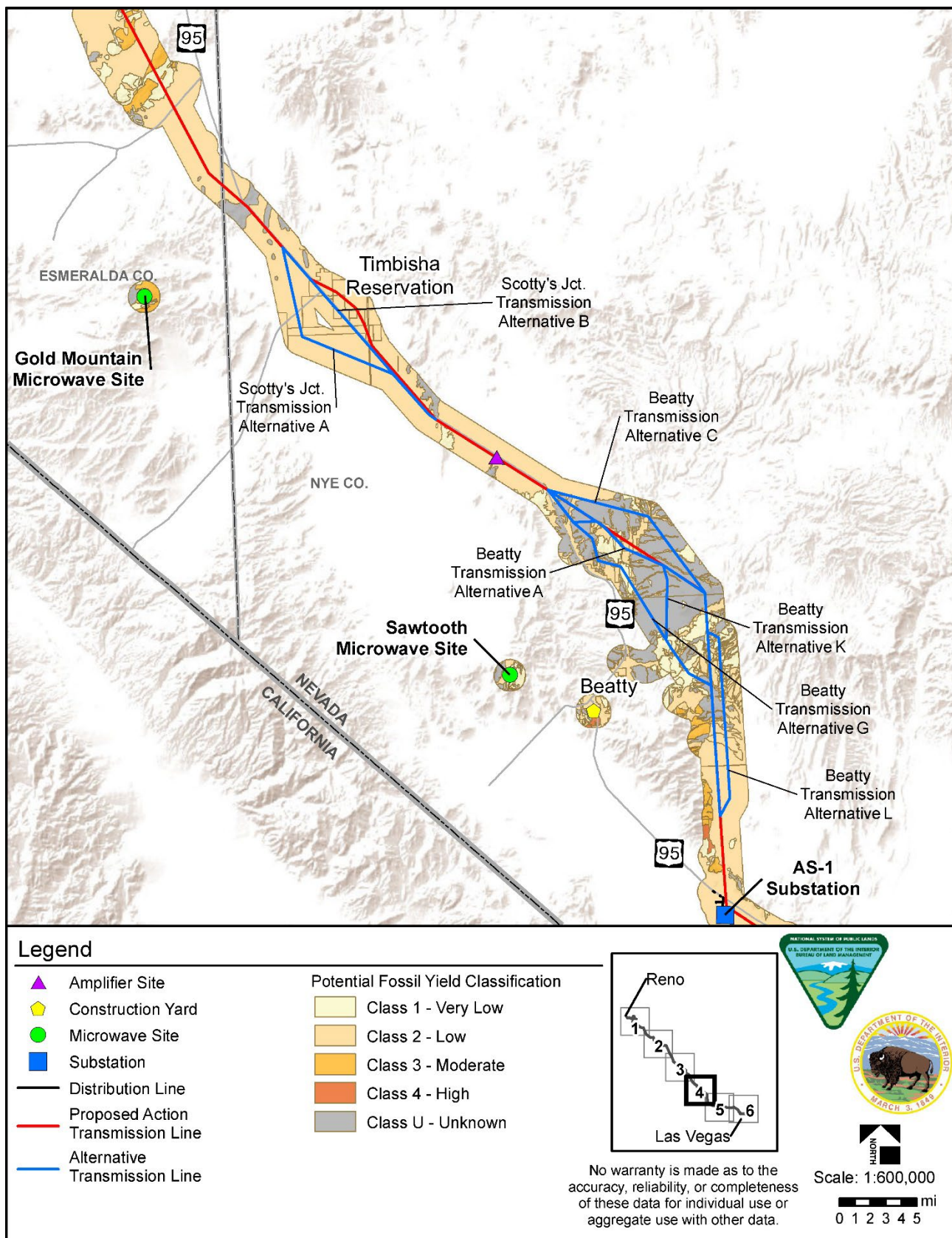
**Figure 3-13. Potential Fossil Yield Classifications (1 of 6)**



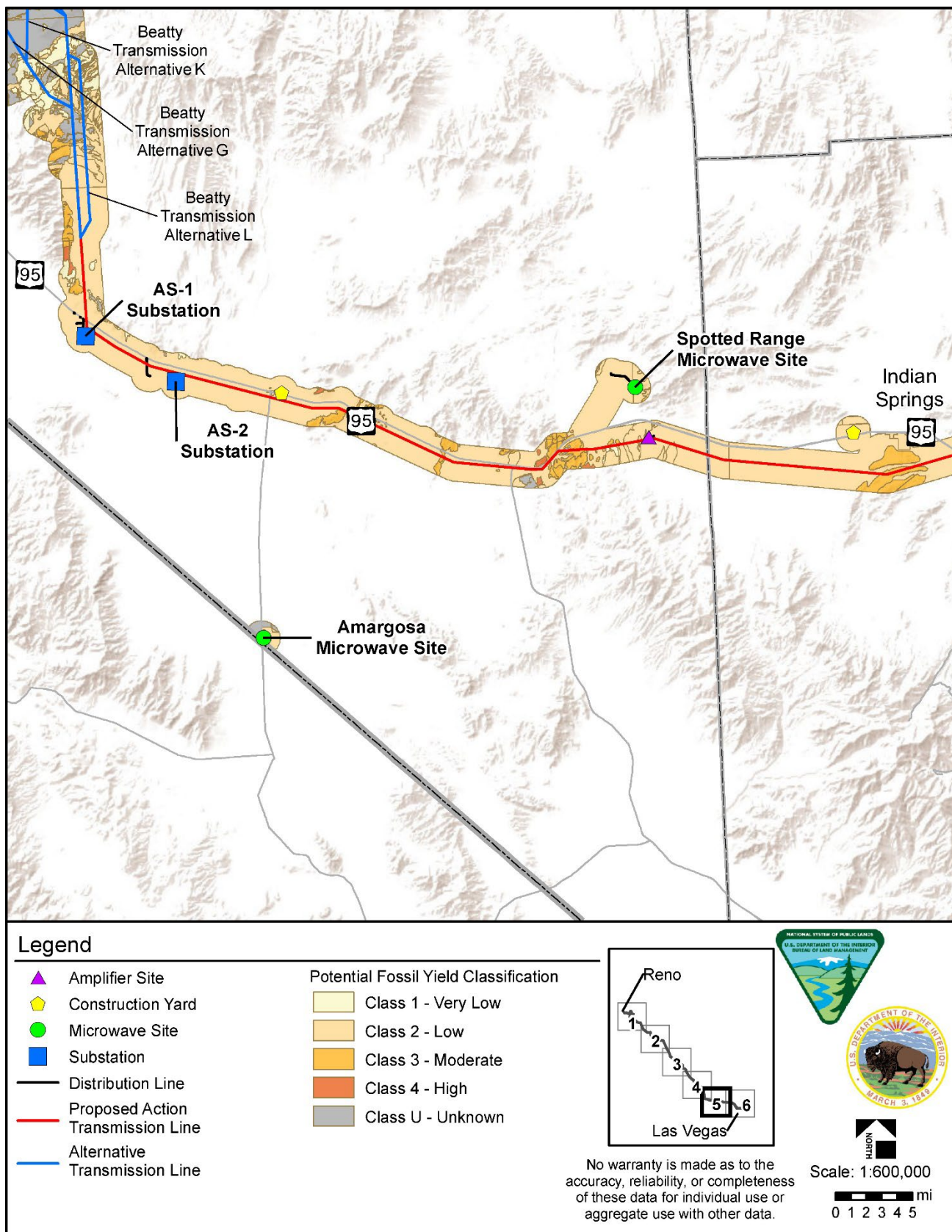
**Figure 3-14. Potential Fossil Yield Classifications (2 of 6)**



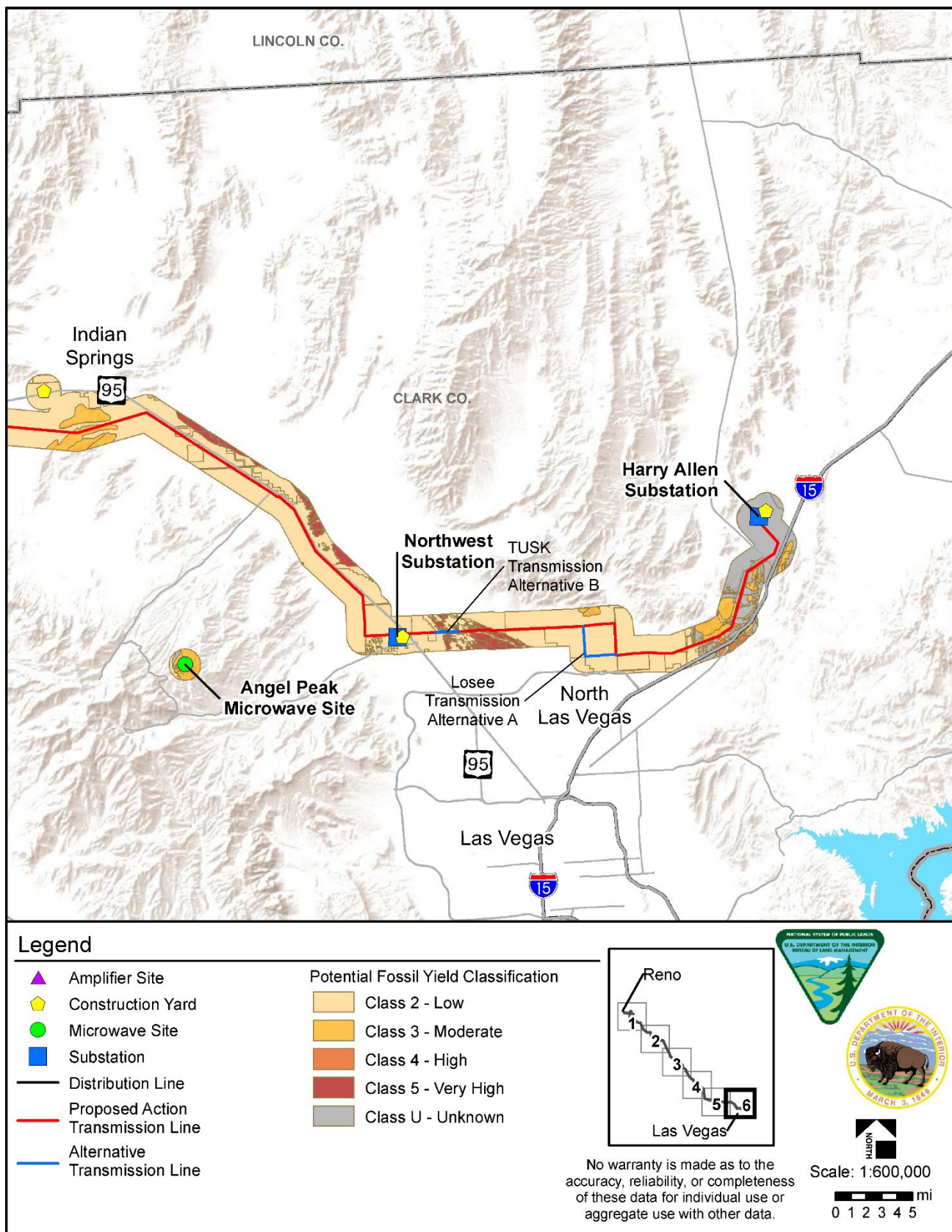
**Figure 3-15. Potential Fossil Yield Classifications (3 of 6)**



**Figure 3-16. Potential Fossil Yield Classifications (4 of 6)**



**Figure 3-17. Potential Fossil Yield Classifications (5 of 6)**



**Figure 3-18. Potential Fossil Yield Classifications (6 of 6)**

#### **3.8.4.1 Direct and Indirect Impacts from No Action Alternative**

It is anticipated that under the No Action Alternative, the current uses and trends would continue to occur. There would be no effects to paleontological resources attributed to the construction, O&M, and decommissioning of the GLWP under the No Action Alternative.

#### **3.8.4.2 Direct and Indirect Effects of Proposed Action**

##### **Construction, Operations and Maintenance, and Decommissioning**

Construction of the Proposed Action would result in disturbance of geologic units with varying paleontological potentials. Assessing the potential effects on paleontological resources is tied to the unit's impacted paleontological potential and the effects would vary accordingly. Approximately 10 percent (4,713.3 acres) of the Proposed Action would be underlain by geologic units with very low paleontological potential and approximately 63 percent (29,919.7 acres) of the Proposed Action would be underlain by geologic units with low paleontological potential at the surface. It is unlikely that activities associated with the construction of the Proposed Action would encounter paleontological resources in units with very low or low paleontological potential, therefore effects to paleontological resources would be unlikely in these geologic units. It should be noted that the majority of the low potential units are younger surficial sediments, which are likely underlain by older geologic units with higher paleontological potential, where fossils are more likely to be encountered.

Approximately 12 percent (5,604.3 acres) of the Proposed Action would be underlain by geologic units that range in paleontological potential from moderate to very high. In these areas, construction activities would be more likely to encounter fossils. The discovery, successful documentation, and salvage of fossils that meet significant criteria as paleontological resources would be a direct effect of the Proposed Action. The effect would pertain to the fossils encountered and provide an indirect effect of advancing scientific study of the types of organisms encountered and their time periods. These effects would be permanent in duration, as the fossils would become part of the scientific record. The effects would also extend beyond the geographic extent of the paleontological analysis area, as the fossils and the resulting scientific information would be disseminated among the general public and/or scientific community. Damage or destruction of paleontological resources by the Proposed Action construction activities could also occur. In particular, geologic units with high or very high paleontological potential are assessed as such for the preservation of a diverse fauna of plants and animals, in the cases of the Esmeralda and the Las Vegas Formations. They are also assessed for exceptionally preserved fossils of the earliest complex organisms and organismal behaviors, in the cases of the Deep Spring and Poleta Formations. Direct effects include the loss of these fossils and the potential scientific contribution of these fossils to the general public and/or scientific community.

These effects would be permanent in duration because paleontological resources are nonrenewable. Damage or destruction of any particular fossil would be a local effect, while the indirect effects would extend beyond the geographic location of the paleontological resources analysis area. It is unlikely that additional effects on paleontological resources would occur during O&M and decommissioning activities. Any effects from the Proposed Action would occur during construction.

### **Measures to Avoid and/or Minimize Impacts**

There are no additional measures recommended to avoid and/or minimize impacts from the Proposed Action to paleontological resources with the implementation of the EMMs (Appendix C. EMMs PALEO-1 through PALEO-4) and the Paleontological Resources Mitigation Plan that has been developed (Appendix L). The Paleontological Resources Mitigation Plan includes additional GPR studies be conducted in the Proposed Action permanent ROW area, with the resulting data used to develop treatment plans for any anomalies identified that may represent fossils, prior to the construction.

#### **3.8.4.3 Direct and Indirect Impacts from the Losee, TUSK, Beatty, Scotty's Junction, Mason Valley WMA, and Carson River Transmission Line Route Groups**

### **Construction, Operations and Maintenance, and Decommissioning**

All of the Losee, TUSK, Beatty, Scotty's Junction, Mason Valley WMA, and Carson River Transmission Alternatives would be underlain by geologic units with the same paleontological potential as the Proposed Action. While the exact geologic units are not identical, the similarities of the paleontological potential between the Proposed Action and these other Action Alternatives indicate that the effects to paleontological resources would likely to be similar under any of the Action Alternatives. In some places, the proportion of the different paleontological potentials would vary between the Proposed Action and the other Action Alternatives. However, these would be mostly minimal differences unlikely to create substantial changes in the anticipated effects to paleontological resources or the need for impact minimization activities along the proposed transmission routes. The paleontological impacts of the Action Alternatives are summarized in Table 3-56 through Table 3-67.

Of the geologic units underlying these Action Alternatives, most are assessed as having low or unknown potential. Units with very low potential would also be present underlying the Beatty Transmission Alternatives A, C, G, K, and L and Carson River Transmission Alternatives A and C. Impacts to paleontological resources are unlikely in units with low or very low potential; impacts cannot be assessed in units with unknown potential. The only Action Alternatives with units with moderate or higher paleontological potential would be the TUSK Transmission Alternative B, portions of Beatty Transmission Alternatives A, C, G, and K, and their comparable segments of the Proposed Action. TUSK Transmission Alternative B is partially underlain by the Las Vegas Formation with very high paleontological potential. The Las Vegas Formation is described above in Section 3.8.3 Affected Environment. The Beatty Transmission Alternatives A, C, G, and K are also partially underlain by the Eleana Formation, which has moderate paleontological potential for the intermittent preservation of common invertebrate fossils (BLM 2023a). Impacts to paleontological resources in these moderate potential units from the Action Alternatives may occur and measures have been developed to avoid or minimize these potential impacts (Appendix L). It is unlikely that additional effects on paleontological resources would occur during O&M and decommissioning activities. Any effects from the Action Alternatives would have occurred during construction.



**Table 3-56. Comparison of Estimated Acres of the PFYC  
Crossed by the Losee Transmission Alternative A**

PFYC Class	Geologic Unit	Geologic Description	Proposed Action (acres)	Alternative Route (acres)
2	Qay: Young Fan Alluvium	Non-cemented alluvial fan gravel and sands with weakly developed soil	156.3	196.4
2	Qay: Young Fan Alluvium	Non-cemented alluvial fan gravel and sands with weakly developed soil	18.5	0.0
<b>TOTAL</b>	-	-	<b>174.8</b>	<b>196.4</b>

Table Acronym(s): PFYC – Potential Fossil Yield Classification

**Table 3-57. Comparison of Estimated Acres of the PFYC  
Crossed by the TUSK Transmission Alternative B**

PFYC Class	Geologic Unit	Geologic Description	Proposed Action (acres)	Alternative Route (acres)
5	Qscd: Las Vegas Formation	Deposits associated with past groundwater discharge	0.3	0.4
5	Qscd: Las Vegas Formation	Deposits associated with past groundwater discharge	9.1	15.5
5	Qscd: Las Vegas Formation	Deposits associated with past groundwater discharge	11.1	4.2
5	Qsu: Las Vegas Formation	Undivided young and intermediate fine-grained deposits associated with past groundwater discharge	3.2	1.2
5	Qsu: Las Vegas Formation	Undivided young and intermediate fine-grained deposits associated with past groundwater discharge	1.9	1.9
<b>PFYC 5 Total</b>	-	-	<b>25.6</b>	<b>23.2</b>
2	Qay: Young Fan Alluvium	Non-cemented alluvial fan gravel and sands with weakly developed soil	10.2	4.9
2	Qay: Young Fan Alluvium	Non-cemented alluvial fan gravel and sands with weakly developed soil	0.6	0.8
2	Qay: Young Fan Alluvium	Non-cemented alluvial fan gravel and sands with weakly developed soil	27.3	41.7
2	Qay: Young Fan Alluvium	Non-cemented alluvial fan gravel and sands with weakly developed soil	12.0	4.9
<b>PFYC 2 Total</b>	-	-	<b>50.1</b>	<b>52.4</b>
<b>TOTAL</b>	-	-	<b>75.7</b>	<b>75.6</b>

Table Acronym(s): PFYC – Potential Fossil Yield Classification; TUSK – Tule Springs Fossil Beds National Monument

**Table 3-58. Comparison of Estimated Acres of the PFYC  
Crossed by the Beatty Transmission Alternative A**

<b>PFYC Class</b>	<b>Geologic Unit</b>	<b>Geologic Description</b>	<b>Proposed Action (acres)</b>	<b>Alternative Route (acres)</b>
1	Tfn: Latite of Donovan Mountain	Crystal-rich latite to trachyte lava flows, feeder dikes, plugs, sills, and related tephra	3.0	3.0
1	Tfb: Beatty Wash Formation	Rhyolite lavas and related tuff	6.4	7.6
1	Tct: Crater Flat Group, Tram Tuff	Resistant, light-brown, light-olive-gray, light-brownish-gray, mostly densely welded but locally non-welded to partially welded crystal-poor, rhyolite ash-flow tuff	36.1	36.1
1	Tmr: Rainier Mesa Tuff, Timber Mountain Group	Generally resistant, pink, brown, light-red, and light-gray, non-welded to densely welded, generally crystal-rich, metaluminous ash-flow tuff derived from the Rainier Mesa caldera	0.1	0.1
1	Tpc: Paintbrush Group, Tiva Canyon Tuff	Voluminous, resistant, gray-to reddish brown, moderately crystal-rich, locally lithophysal, non-welded to densely welded ash-flow tuff	46.6	46.6
1	Tqu: Belted Range Group, Volcanic Rocks of Quartz Mountain	Sequence of mostly local metaluminous rhyolite to quartz trachyte lava flows, ash-flow tuff and airfall tuff	0.4	0.4
1	Tff: Rhyolite of Fleur-de-lis Ranch	Rhyolite lavas and welded ash-flow tuff	0.0	22.5
<b>PFYC 1 Total</b>	-	-	<b>92.6</b>	<b>116.3</b>
2	Qay: young alluvial deposits	Holocene-aged gravel, sand, and silt; intermixed and interbedded	294.2	294.2
2	Qay: young alluvial deposits	Holocene-aged gravel, sand, and silt; intermixed and interbedded	0.5	0.5
2	QTa: surficial deposits	Holocene- to Pleistocene-aged fan and stream alluvium	282.3	244.4
2	QTa: surficial deposits	Holocene- to Pleistocene-aged fan and stream alluvium	18.2	2.3
2	Qal: surficial sediments	Holocene- to Pleistocene-aged colluvium, alluvium, playa deposits	72.8	68.0
<b>PFYC 2 Total</b>	-	-	<b>668.0</b>	<b>609.4</b>

**Table 3-58. Comparison of Estimated Acres of the PFYC  
Crossed by the Beatty Transmission Alternative A  
(continued)**

<b>PFYC Class</b>	<b>Geologic Unit</b>	<b>Geologic Description</b>	<b>Proposed Action (acres)</b>	<b>Alternative Route (acres)</b>
3	MDe: Eleana Formation	Chert-rich sandstone and pebble conglomerate, and siliceous sandstone and minor bioclastic limestone	5.3	5.3
<b>PFYC 3 Total</b>	-	-	<b>5.3</b>	<b>5.3</b>
U	Tgo: Gravels of Oasis Valley	Basin-fill deposits and fan alluvium	345.7	384.5
U	Tgo: Belted Range Group, Older sedimentary rocks, undivided	Mostly soft, coarse-grained sedimentary rocks of widely scattered units of differently poorly constrained ages	42.1	42.1
U	Tgy: Basin-Fill sediments, undivided	Poorly consolidated, poorly sorted, poorly to moderately well-bedded, sandy gravel and tuffaceous matrix	109.5	109.5
U	Tpy: Young tuffs of the Pancake Caldera Complex	Moderately resistant, gray, pink, brown, and light-orange almost aphyric, locally lithophysal, non-welded to densely welded high silica rhyolite ash-fall tuff	20.8	20.8
<b>PFYC U Total</b>	-	-	<b>518.0</b>	<b>557.0</b>
<b>TOTAL</b>	-	-	<b>1,283.9</b>	<b>1,288.0</b>

Table Acronym(s): PFYC – Potential Fossil Yield Classification

**Table 3-59. Comparison of Estimated Acres of the PFYC  
Crossed by the Beatty Transmission Alternative C**

<b>PFYC Class</b>	<b>Geologic Unit</b>	<b>Geologic Description</b>	<b>Proposed Action (acres)</b>	<b>Alternative Route (acres)</b>
1	Tfn: Latite of Donovan Mountain	Crystal-rich latite to trachyte lava flows, feeder dikes, plugs, sills, and related tephra	3.0	2.6
1	Tyb: Thirsty Canyon and Younger Basalts	Widespread trachybasalt, basaltic andesite lava flows	0.0	1.7
1	Tfb: Beatty Wash Formation	Rhyolite lavas and related tuff	6.4	0.0
1	Tct: Crater Flat Group, Tram Tuff	Resistant, light-brown, light-olive-gray, light-brownish-gray, mostly densely welded but locally non welded to partially welded crystal-poor, rhyolite ash-flow tuff	36.1	36.1
1	Tqu: Belted Range Group, Volcanic Rocks of Quartz Mountain	Sequence of mostly local metaluminous rhyolite to quartz trachyte lava flows, ash-flow tuff and airfall tuff	0.4	0.4

**Table 3-60. Comparison of Estimated Acres of the PFYC  
Crossed by the Beatty Transmission Alternative C  
(continued)**

<b>PFYC Class</b>	<b>Geologic Unit</b>	<b>Geologic Description</b>	<b>Proposed Action (acres)</b>	<b>Alternative Route (acres)</b>
1	Tmr: Rainier Mesa Tuff, Timber Mountain Group	Generally resistant, pink, brown, light-red, and light-gray, non-welded to densely welded, generally crystal-rich, metaluminous ash-flow tuff derived from the Rainier Mesa caldera	0.1	0.1
1	Tpc: Paintbrush Group, Tiva Canyon Tuff	Voluminous, resistant, gray-to-reddish brown, moderately crystal-rich, locally lithophysal, non-welded to densely welded ash-flow tuff	46.6	46.6
<b>PFYC 1 Total</b>	-	-	<b>92.6</b>	<b>87.5</b>
2	Qay: younger alluvial fans	Holocene-aged alluvium	294.2	294.1
2	Qay: younger alluvial fans	Holocene-aged alluvium	0.5	0.5
2	QTa: surficial deposits	Holocene- to Pleistocene-aged fan and stream alluvium	282.3	193.8
2	QTa: surficial deposits	Holocene- to Pleistocene-aged fan and stream alluvium	18.2	0.0
2	Qal: surficial sediments	Holocene- to Pleistocene-aged colluvium, alluvium, playa deposits	72.8	126.3
<b>PFYC 2 Total</b>	-	-	<b>668.0</b>	<b>614.7</b>
3	MDe: Eleana Formation	Chert-rich sandstone and pebble conglomerate, and siliceous sandstone and minor bioclastic limestone	5.3	5.3
<b>PFYC 3 Total</b>	-	-	<b>5.3</b>	<b>5.3</b>
U	Tgo: Gravels of Oasis Valley	Basin-fill deposits and fan alluvium	345.7	445.2
U	Tgo: Belted Range Group, Older sedimentary rocks, undivided	Mostly soft, coarse-grained sedimentary rocks of widely scattered units of differently poorly constrained ages	42.1	42.0
U	Tgy: Basin-Fill sediments, undivided	Poorly consolidated, poorly sorted, poorly to moderately well-bedded, sandy gravel and tuffaceous matrix	109.5	109.5
U	Tpy: Young tuffs of the Pancake Caldera Complex	Moderately resistant, gray, pink, brown, and light-orange almost aphyric, locally lithophysal, non-welded to densely welded high-silica rhyolite ash-fall tuff	20.8	20.8
<b>PFYC U Total</b>	-	-	<b>518.0</b>	<b>617.5</b>
<b>TOTAL</b>	-	-	<b>1,283.9</b>	<b>1,325.0</b>

Table Acronym(s): PFYC – Potential Fossil Yield Classification

**Table 3-61. Comparison of Estimated Acres of the PFYC  
Crossed by the Beatty Transmission Alternative G**

<b>PFYC Class</b>	<b>Geologic Unit</b>	<b>Geologic Description</b>	<b>Proposed Action (acres)</b>	<b>Alternative Route (acres)</b>
1	Tfn: Latite of Donovan Mountain	Crystal-rich latite to trachyte lava flows, feeder dikes, plugs, sills, and related tephra	3.0	4.0
1	Txy: Thirsty Canyon Group, Younger landslide, gravity slide and talus breccia	Mostly soft masses of landslide, talus and rock-avalanche breccia	0.0	5.6
1	Tfb: Beatty Wash Formation	Rhyolite lavas and related tuff	6.4	28.7
1	Tma: Ammonia Tanks Tuff, Timber Mountain Group	Voluminous, moderately resistant, light-red, lavender-gray, light-gray, light-brown, and black, non-welded to densely welded, generally crystal-rich, metaluminous ash-flow tuff derived from the Ammonia Tank caldera	0.0	54.6
1	Tct: Crater Flat Group, Tram Tuff	Resistant, light-brown, light-olive-gray, light-brownish-gray, mostly densely welded but locally non-welded to partially welded crystal-poor, rhyolite ash-flow tuff	36.1	0.0
1	Tmr: Rainier Mesa Tuff, Timber Mountain Group	Generally resistant, pink, brown, light-red, and light-gray, non-welded to densely welded, generally crystal-rich, metaluminous ash-flow tuff derived from the Rainier Mesa caldera	0.1	46.4
1	Tqu: Belted Range Group, Volcanic Rocks of Quartz Mountain	Sequence of mostly local metaluminous rhyolite to quartz trachyte lava flows, ash-flow tuff and airfall tuff	0.4	0.0
1	Tff: Rhyolite of Fleur-de-lis Ranch	Rhyolite lavas and welded ash-flow tuff	0.0	49.8
1	Tmrf: Rhyolite of Fluorspar Canyon, Timber Mountain Group	Mostly soft, light-gray, pink, and white, non-welded rhyolite ash-flow, airfall, surge, and water-laid tuff and subordinate, locally resistant, gray, petrographically identical rhyolite lava flow	0.0	82.3
1	Tpc: Paintbrush Group, Tiva Canyon Tuff	Voluminous, resistant, gray to reddish-brown, moderately crystal-rich, locally lithophysal, non-welded to densely welded ash-flow tuff	46.6	17.1
<b>PFYC 1 Total</b>	-	-	<b>92.6</b>	<b>288.5</b>

**Table 3-60. Comparison of Estimated Acres of the PFYC  
Crossed by the Beatty Transmission Alternative G  
(continued)**

<b>PFYC Class</b>	<b>Geologic Unit</b>	<b>Geologic Description</b>	<b>Proposed Action (acres)</b>	<b>Alternative Route (acres)</b>
2	Qay: younger alluvial fans	Holocene-aged fan and stream alluvium	294.2	269.7
2	Qay: younger alluvial fans	Holocene-aged fan and stream alluvium	0.5	0.5
2	QTa: surficial deposits	Holocene- to Pleistocene-aged fan and stream alluvium	282.3	74.4
2	QTa: surficial deposits	Holocene- to Pleistocene-aged fan and stream alluvium	18.2	0.0
2	Qal: surficial sediments	Holocene- to Pleistocene-aged colluvium, alluvium, playa deposits	72.8	107.6
2	Qal: surficial sediments	Holocene- to Pleistocene-aged colluvium, alluvium, playa deposits	0.0	0.1
2	Qal: alluvium	Fan and stream gravels flanking mountains and hills and grading outward into sands and silt	0.0	2.5
<b>PFYC 2 Total</b>	-	-	<b>668.0</b>	<b>454.9</b>
3	MDe: Eleana Formation	Chert-rich sandstone and pebble conglomerate, and siliceous sandstone and minor bioclastic limestone	5.3	5.3
<b>PFYC 3 Total</b>	-	-	<b>5.3</b>	<b>5.3</b>
U	Tgy: Basin-Fill sediments, undivided	Poorly consolidated, poorly sorted, poorly to moderately well-bedded, sandy gravel and tuffaceous matrix	109.5	138.3
U	Tcg, Tgx: sedimentary rocks	Gravel, sand, and silt, intermixed and interbedded	0.0	24.1
U	Tgo: Gravels of Oasis Valley	Basin-fill deposits and fan alluvium	345.7	206.4
U	Tgo: Belted Range Group, Older sedimentary rocks, undivided	Mostly soft, coarse-grained sedimentary rocks of widely scattered units of differently poorly constrained ages	42.1	122.6
U	Tpu: Post-Tiva Canyon rhyolites	Rhyolite lavas and related non-welded tuff	0.0	<0.1
U	Tpy: Young tuffs of the Pancake Caldera Complex	Moderately resistant, gray, pink, brown, and light-orange almost aphyric, locally lithophysal, non-welded to densely welded high-silica rhyolite ash-fall tuff	20.8	0.0
<b>PFYC U Total</b>	-	-	<b>518.0</b>	<b>491.5</b>
<b>TOTAL</b>	-	-	<b>1,283.9</b>	<b>1,240.2</b>

Table Acronym(s): PFYC – Potential Fossil Yield Classification

**Table 3-62. Comparison of Estimated Acres of the PFYC  
Crossed by the Beatty Transmission Alternative K**

<b>PFYC Class</b>	<b>Geologic Unit</b>	<b>Geologic Description</b>	<b>Proposed Action (acres)</b>	<b>Alternative Route (acres)</b>
1	Tfn: Latite of Donovan Mountain	Crystal-rich latite to trachyte lava flows, feeder dikes, plugs, sills, and related tephra	3.0	3.3
1	Txy: Thirsty Canyon Group, Younger landslide, gravity slide and talus breccia	Mostly soft masses of landslide, talus and rock-avalanche breccia	0.0	5.6
1	Tfb: Beatty Wash Formation	Rhyolite lavas and related tuff	6.4	20.6
1	Tff: Rhyolite of Fleur-de-lis Ranch	Rhyolite lavas and welded ash-flow tuff	0.0	22.5
1	Tct: Crater Flat Group, Tram Tuff	Resistant, light-brown, light-olive-gray, light-brownish-gray, mostly densely welded but locally non-welded to partially welded crystal-poor, rhyolite ash-flow tuff	36.1	0.0
1	Tqu: Belted Range Group, Volcanic Rocks of Quartz Mountain	Sequence of mostly local metaluminous rhyolite to quartz trachyte lava flows, ash-flow tuff and airfall tuff	0.4	0.0
1	Tmr: Rainier Mesa Tuff, Timber Mountain Group	Generally resistant, pink, brown, light-red, and light-gray, non-welded to densely welded, generally crystal-rich, metaluminous ash-flow tuff derived from the Rainier Mesa caldera	0.1	38.3
1	Tmr: Rhyolite of Flourspar Canyon, Timber Mountain Group	Mostly soft, light-gray, pink, and white, non-welded rhyolite ash-flow, airfall, surge, and water-laid tuff and subordinate, locally resistant, gray, petrographically identical rhyolite lava flow	0.0	80.8
1	Tpc: Paintbrush Group, Tiva Canyon Tuff	Voluminous, resistant, gray-reddish brown, moderately crystal-rich, locally lithophysal, non-welded to densely welded ash-flow tuff	46.6	17.1
<b>PFYC 1 Total</b>	-	-	<b>92.6</b>	<b>188.2</b>
2	Qay: younger alluvial fans	Holocene-aged fan and stream alluvium	294.2	269.8
2	Qay: younger alluvial fans	Holocene-aged fan and stream alluvium	0.5	0.5
2	QTa: surficial deposits	Holocene- to Pleistocene-aged fan and stream alluvium	282.3	174.1

**Table 3-61. Comparison of Estimated Acres of the PFYC  
Crossed by the Beatty Transmission Alternative K  
(continued)**

<b>PFYC Class</b>	<b>Geologic Unit</b>	<b>Geologic Description</b>	<b>Proposed Action (acres)</b>	<b>Alternative Route (acres)</b>
2	QTa: surficial deposits	Holocene- to Pleistocene-aged fan and stream alluvium	18.2	2.3
2	Qal: surficial sediments	Holocene- to Pleistocene-aged colluvium, alluvium, playa deposits	72.8	83.4
<b>PFYC 2 Total</b>	-	-	<b>668.0</b>	<b>530.0</b>
3	MDe: Eleana Formation	Chert-rich sandstone and pebble conglomerate, and siliceous sandstone and minor bioclastic limestone	5.3	5.3
<b>PFYC 3 Total</b>	-	-	<b>5.3</b>	<b>5.3</b>
U	Tgy: Basin-Fill sediments, undivided	Poorly consolidated, poorly sorted, poorly to moderately well bedded, sandy gravel and tuffaceous matrix	109.5	138.3
U	Tcg, Tgx: sedimentary rocks	Gravel, sand, and silt, intermixed and interbedded	0.0	27.2
U	Tgo: Gravels of Oasis Valley	Basin-fill deposits and fan alluvium	345.7	313.1
U	Tgo: Belted Range Group, Older sedimentary rocks, undivided	Mostly soft, coarse-grained sedimentary rocks of widely scattered units of differently poorly constrained ages	42.1	100.7
U	Tpu: Post-Tiva Canyon rhyolites	Rhyolite lavas and related non-welded tuff	0.0	<0.1
U	Tpy: Young tuffs of the Pancake Caldera Complex	Moderately resistant, gray, pink, brown, and light-orange almost aphyric, locally lithophysal, non-welded to densely welded high-silica rhyolite ash-fall tuff	20.8	0.0
<b>PFYC U Total</b>	-	-	<b>518.0</b>	<b>579.3</b>
<b>TOTAL</b>	-	-	<b>1,283.9</b>	<b>1,302.8</b>

Table Acronym(s): PFYC – Potential Fossil Yield Classification

**Table 3-63. Comparison of Estimated Acres of the PFYC  
Crossed by the Beatty Transmission Alternative L**

<b>PFYC Class</b>	<b>Geologic Unit</b>	<b>Geologic Description</b>	<b>Proposed Action (acres)</b>	<b>Alternative Route (acres)</b>
1	Tfn: Latite of Donovan Mountain	Crystal-rich latite to trachyte lava flows, feeder dikes, plugs, sills, and related tephra	3.0	3.3
1	Txy: Thirsty Canyon Group, Younger landslide, gravity slide and talus breccia	Mostly soft masses of landslide, talus and rock-avalanche breccia	0.0	23.8



**Table 3-62. Comparison of Estimated Acres of the PFYC  
Crossed by the Beatty Transmission Alternative L  
(continued)**

<b>PFYC Class</b>	<b>Geologic Unit</b>	<b>Geologic Description</b>	<b>Proposed Action (acres)</b>	<b>Alternative Route (acres)</b>
1	Tfb: Beatty Wash Formation	Rhyolite lavas and related tuff	6.4	7.6
1	Tff: Rhyolite of Fleur-de-lis Ranch	Rhyolite lavas and welded ash-flow tuff	0.0	22.5
1	Tct: Crater Flat Group, Tram Tuff	Resistant, light-brown, light-olive-gray, light-brownish-gray, mostly densely welded but locally non-welded to partially welded crystal-poor, rhyolite ash-flow tuff	36.1	36.1
1	Tqu: Belted Range Group, Volcanic Rocks of Quartz Mountain	Sequence of mostly local metaluminous rhyolite to quartz trachyte lava flows, ash-flow tuff and airfall tuff	0.4	4.5
1	Tmr: Rainier Mesa Tuff, Timber Mountain Group	Generally resistant, pink, brown, light-red, and light-gray, non-welded to densely welded, generally crystal-rich, metaluminous ash-flow tuff derived from the Rainier Mesa caldera	0.1	6.9
1	Tmrf: Rhyolite of Fluorspar Canyon, Timber Mountain Group	Mostly soft, light-gray, pink, and white, non-welded rhyolite ash-flow, airfall, surge, and water-laid tuff and subordinate, locally resistant, gray, petrographically identical rhyolite lava flow	0.0	18.3
1	Tpc: Paintbrush Group, Tiva Canyon Tuff	Voluminous, resistant, gray to reddish-brown, moderately crystal-rich, locally lithophysal, non-welded to densely welded ash-flow tuff	46.6	50.7
<b>PFYC 1 Total</b>	-	-	<b>92.6</b>	<b>173.8</b>
2	Qay: younger alluvial fans	Holocene-aged fan and stream alluvium	294.2	329.7
2	Qay: younger alluvial fans	Holocene-aged fan and stream alluvium	0.5	0.6
2	QTa: surficial deposits	Holocene- to Pleistocene-aged fan and stream alluvium	282.3	250.6
2	QTa: surficial deposits	Holocene- to Pleistocene-aged fan and stream alluvium	18.2	2.3
2	Qal: surficial sediments	Holocene- to Pleistocene-aged colluvium, alluvium, playa deposits	72.8	83.7
<b>PFYC 2 Total</b>	-	-	<b>668.0</b>	<b>666.9</b>
3	MDe: Eleana Formation	Chert-rich sandstone and pebble conglomerate, and siliceous sandstone and minor bioclastic limestone	5.3	0.0
<b>PFYC 3 Total</b>	-	-	<b>5.3</b>	<b>0.0</b>

**Table 3-62. Comparison of Estimated Acres of the PFYC  
Crossed by the Beatty Transmission Alternative L  
(continued)**

<b>PFYC Class</b>	<b>Geologic Unit</b>	<b>Geologic Description</b>	<b>Proposed Action (acres)</b>	<b>Alternative Route (acres)</b>
U	Tgy: Basin-Fill sediments, undivided	Poorly consolidated, poorly sorted, poorly to moderately well bedded, sandy gravel and tuffaceous matrix	109.5	68.4
U	Tgo: Gravels of Oasis Valley	Basin-fill deposits and fan alluvium	345.7	381.6
U	Tgo: Belted Range Group, Older sedimentary rocks, undivided	Mostly soft, coarse-grained sedimentary rocks of widely scattered units of differently poorly constrained ages	42.1	42.1
U	Tpy: Young tuffs of the Pancake Caldera Complex	Moderately resistant, gray, pink, brown, and light-orange almost aphyric, locally lithophysal, non-welded to densely welded high-silica rhyolite ash-fall tuff	20.8	4.7
<b>PFYC U Total</b>	-	-	<b>518.0</b>	<b>496.7</b>
<b>TOTAL</b>	-	-	<b>1,283.9</b>	<b>1,337.4</b>

Table Acronym(s): PFYC – Potential Fossil Yield Classification

**Table 3-64. Comparison of Estimated Acres of the PFYC  
Crossed by the Scotty's Junction Transmission Alternative A**

<b>PFYC Class</b>	<b>Geologic Unit</b>	<b>Geologic Description</b>	<b>Proposed Action (acres)</b>	<b>Alternative Route (acres)</b>
2	Qal: Surficial sediments	Holocene- to Pleistocene-aged colluvium, alluvium, playa deposits	591.7	760.9
2	Qal: Surficial sediments	Holocene- to Pleistocene-aged colluvium, alluvium, playa deposits	128.6	24.6
2	Qay: Young Alluvial deposits	Holocene-aged fan and stream alluvium	0.0	2.4
2	Qay: Young Alluvial deposits	Holocene-aged fan and stream alluvium	9.2	0.0
<b>PFYC 2 Total</b>	-	-	<b>729.5</b>	<b>787.9</b>
U	Tfa: Andesitic Lavas	Andesitic to basaltic lava flows and local interflow tuffaceous sedimentary rocks	3.1	0.0
<b>PFYC U Total</b>	-	-	<b>3.1</b>	<b>0.0</b>
<b>TOTAL</b>	-	-	<b>732.6</b>	<b>787.9</b>

Table Acronym(s): PFYC – Potential Fossil Yield Classification

**Table 3-65. Comparison of Estimated Acres of the PFYC  
Crossed by the Scotty's Junction Transmission Alternative B**

PFYC Class	Geologic Unit	Geologic Description	Proposed Action (acres)	Alternative Route (acres)
2	Qal: Surficial sediments	Holocene- to Pleistocene-aged colluvium, alluvium, playa deposits	0.0	74.5
2	Qal: Surficial sediments	Holocene- to Pleistocene-aged colluvium, alluvium, playa deposits	591.7	504.5
2	Qal: Surficial sediments	Holocene- to Pleistocene-aged colluvium, alluvium, playa deposits	128.6	137.2
2	Qay: Young Alluvial deposits	Holocene-aged fan and stream alluvium	0.0	4.0
2	Qay: Young Alluvial deposits	Holocene-aged fan and stream alluvium	9.2	0.0
<b>PFYC 2 Total</b>	-	-	<b>729.5</b>	<b>720.2</b>
U	Tfa: Andesitic Lavas	Andesitic to basaltic lava flows and local interflow tuffaceous sedimentary rocks	3.1	0.0
<b>PFYC U Total</b>	-	-	<b>3.1</b>	<b>0.0</b>
<b>TOTAL</b>	-	-	<b>732.6</b>	<b>720.2</b>

Table Acronym(s): PFYC – Potential Fossil Yield Classification

**Table 3-66. Comparison of Estimated Acres of the PFYC  
Crossed by the Mason Valley WMA Transmission Alternative A**

PFYC Class	Geologic Unit	Geologic Description	Proposed Action (acres)	Alternative Route (acres)
2	Qal: Alluvium	Mainly alluvial fan gravel, stream-laid gravel, sand and silt, some talus material	56.4	31.2
2	Qal: Alluvium	Mainly alluvial fan gravel, stream-laid gravel, sand and silt, some talus material	0.7	0.0
2	Qp: Playa, floodplain	Fine sand, silt, and clay of river flood plains, and playa clay and sand	2.4	135.3
2	Qp: Playa, floodplain	Fine sand, silt, and clay of river flood plains, and playa clay and sand	178.7	57.0
<b>PFYC 2 Total</b>	-	-	<b>238.2</b>	<b>223.5</b>
U	JTRv: Metavolcanic Rocks	Andesite breccias, tuffs, and flows; and rhyolite, with interbedded volcanic-derived sedimentary rocks	0.0	118.0
<b>PFYC U Total</b>	-	-	<b>0.0</b>	<b>118.0</b>
<b>TOTAL</b>	-	-	<b>238.2</b>	<b>341.5</b>

Table Acronym(s): PFYC – Potential Fossil Yield Classification

**Table 3-67. Comparison of Estimated Acres of the PFYC Crossed by the Carson River Transmission Alternative A**

<b>PFYC Class</b>	<b>Geologic Unit</b>	<b>Geologic Description</b>	<b>Proposed Action (acres)</b>	<b>Alternative Route (acres)</b>
1	Kg: Granitic rocks	Undivided nonporphyritic quartz monzonite and granodiorite and hybrid mafic rocks	24.2	24.2
1	Kg: Granitic rocks	Undivided nonporphyritic quartz monzonite and granodiorite and hybrid mafic rocks	52.8	52.8
1	Th: Hartford Hill Rhyolite Tuff	Predominantly ash-flow tuff, variably welded	4.6	4.6
1	Th: Hartford Hill Rhyolite Tuff	Predominantly ash-flow tuff, variably welded	1.1	1.1
1	JTRs: metasedimentary rocks	Shale, slate, tuffaceous siltstone, sandstone and greywacke	57.4	57.4
<b>PFYC 1 Total</b>	-	-	<b>140.1</b>	<b>140.1</b>
2	Qal: Alluvium	Mainly alluvial fan gravel, stream-laid gravel, sand and silt, some talus material	178.6	156.8
2	Qal: Alluvium	Mainly alluvial fan gravel, stream-laid gravel, sand and silt, some talus material	279.0	404.4
2	Qp: Playa, floodplain	Fine sand, silt, and clay of river flood plains, and playa clay and sand	383.9	393.1
2	Qp: Playa, floodplain	Fine sand, silt, and clay of river flood plains, and playa clay and sand	729.1	727.9
2	Ts: Sedimentary Rocks	Lacustrine and fluvial sediments, sandstone, mudstone, shale, marl	768.4	656.9
2	Ts: Sedimentary Rocks	Lacustrine and fluvial sediments, sandstone, mudstone, shale, marl	8.9	0.0
<b>PFYC 2 Total</b>	-	-	<b>2,347.9</b>	<b>2,339.1</b>
U	Ta: Andesitic rocks	Flow breccias, lava flows, and agglomerates with interbedded sediments	315.9	331.9
U	Ta: Andesitic rocks	Flow breccias, lava flows, and agglomerates with interbedded sediments	116.3	152.8
U	QTb: Basalt and Rhyolite	Olivine basalt, basalt, basaltic andesite and pyroxene andesite flows	299.0	399.7
U	QTb: Basalt and Rhyolite	Olivine basalt, basalt, basaltic andesite and pyroxene andesite flows	107.7	64.9
U	QToa: older alluvium	Predominantly fanglomerate and pediment gravel	45.2	45.2
U	QToa: older alluvium	Predominantly fanglomerate and pediment gravel	38.6	38.6
<b>PFYC U Total</b>	-	-	<b>922.7</b>	<b>1,033.1</b>
<b>TOTAL</b>	-	-	<b>3,410.7</b>	<b>3,512.3</b>

Table Acronym(s): PFYC – Potential Fossil Yield Classification

**Table 3-68. Comparison of Estimated Acres of the PFYC Crossed by the Carson River Transmission Alternative C**

<b>PFYC Class</b>	<b>Geologic Unit</b>	<b>Geologic Description</b>	<b>Proposed Action (acres)</b>	<b>Alternative Route (acres)</b>
1	Kg: Granitic Rocks	Undivided nonporphyritic quartz monzonite and granodiorite and hybrid mafic rocks	24.2	95.2
1	Kg: Granitic Rocks	Undivided nonporphyritic quartz monzonite and granodiorite and hybrid mafic rocks	52.8	10.4
1	Th: Hartford Hill Rhyolite	Predominantly ash-flow tuff, variably welded	4.6	191.4
1	Th: Hartford Hill Rhyolite	Predominantly ash-flow tuff, variably welded	1.0	0.0
1	JTRs: Metasedimentary rocks	Shale, slate, tuffaceous siltstone, sandstone and greywacke	57.4	0.1
<b>PFYC 1 Total</b>	-	-	<b>140.0</b>	<b>297.1</b>
2	Qal: Alluvium	Mainly alluvial fan gravel, stream-laid gravel, sand and silt, some talus material	178.6	648.6
2	Qal: Alluvium	Mainly alluvial fan gravel, stream-laid gravel, sand and silt, some talus material	279.0	98.5
2	Qp: Playa, floodplain	Fine sand, silt, and clay of river flood plains, and playa clay and sand	383.9	69.8
2	Qp: Playa, floodplain	Fine sand, silt, and clay of river flood plains, and playa clay and sand	729.1	449.4
2	Ts: Sedimentary Rocks	Lacustrine and fluviatile sediments, sandstone, mudstone, shale, marl	768.4	575.0
2	Ts: Sedimentary Rocks	Lacustrine and fluviatile sediments, sandstone, mudstone, shale, marl	8.9	0.0
<b>PFYC 2 Total</b>	-	-	<b>2,347.9</b>	<b>1,841.3</b>
U	Ta: Andesitic Rocks	Flow breccias, lava flows, and agglomerates with interbedded sediments	315.9	505.3
U	Ta: Andesitic Rocks	Flow breccias, lava flows, and agglomerates with interbedded sediments	116.3	106.9
U	QTb: Basalt and Rhyolite	Olivine basalt, basalt, basaltic andesite and pyroxene andesite flows	299.0	391.8
U	QTb: Basalt and Rhyolite	Olivine basalt, basalt, basaltic andesite and pyroxene andesite flows	107.7	37.9
U	QToa: Older Alluvium	Predominantly fanglomerate and pediment gravel	45.2	0.0
U	QToa: Older Alluvium	Predominantly fanglomerate and pediment gravel	38.5	0.0
<b>PFYC U Total</b>	-	-	<b>922.6</b>	<b>1,041.9</b>
<b>TOTAL</b>	-	-	<b>3,410.5</b>	<b>3,180.3</b>

Table Acronym(s): PFYC – Potential Fossil Yield Classification

#### **3.8.4.4 Direct and Indirect Impacts from Amargosa and Esmeralda Substation Groups and Amargosa Microwave Group**

##### **Construction, Operations and Maintenance, and Decommissioning**

There would be no distinct differences in the construction, O&M, and decommissioning impacts on paleontological resources associated with AS-1 or AS-2 (Proposed Action); ES-1, ES-2 (Proposed Action), or ES-3; and AM-1 or AM-2 (Proposed Action) when compared to each other. The impacts from these Action Alternatives would be the same.

#### **3.8.4.5 Impacts from Anti-Perching/Nesting Mitigation Measure**

##### **Construction, Operations and Maintenance, Decommissioning**

Refer to Additional Measures to Avoid and/or Minimize Impacts for Bi-State sage-grouse and Mojave desert tortoise in Section 3.1.4.2 for detailed information regarding this mitigation measure. The anti-perching/nesting mitigation measure would have no distinct impact differences for paleontological resources.

### **3.9 Earth Resources**

Refer to Appendix AB. Other Resources/Uses Analyzed in Detail for a discussion of the affected environment and environmental consequences associated with earth resources from the implementation of the Action and No Action Alternatives. Any changes that have been made to Section 3.9 are a result of comments and input on the Draft EIS/RMPA. Refer to Section 3.18.6.9 for the cumulative impacts associated with earth resources.

### **3.10 Air Quality, Climate Change, and Greenhouse Gas Emissions**

Refer to Appendix AB. Other Resources/Uses Analyzed in Detail for a discussion of the affected environment and environmental consequences associated with air quality, climate change, and greenhouse gas emissions from the implementation of the Action and No Action Alternatives. Any changes that have been made to Section 3.10 are a result of comments and input on the Draft EIS/RMPA. Refer to Section 3.18.6.10 for the cumulative impacts associated with air quality, climate change, and greenhouse gas emissions.

### **3.11 Special Designation Areas**

Special designation areas (SDAs) are lands managed for specific conservation, preservation, or recreational uses. They are typically public lands managed by federal, state, and local governmental entities. Special designation areas include National Monuments, WMAs, National Conservation Areas (NCAs), ACECs, Wilderness Areas, Wilderness Study Areas (WSAs), LWC, National Historic Trails (NHTs), NWRs, Special Recreation Management Areas (SRMAs), Extensive Recreation Management Areas (ERMA), NRAs, and Wild and Scenic Rivers. There are no Wild and Scenic Rivers within the GLWP area (five-mile radius on either side of the transmission centerline for all Action Alternatives). The remainder of SDAs are discussed in this section except Section 3.12 which addresses NHT.

#### **3.11.1 Issues Identified for Analysis**

- What would the impacts be from the GLWP on the Mason Valley WMA, TUSK, Desert NWR, and other SDAs within the GLWP Area?

- Would the construction, O&M, and decommissioning of the GLWP change the acreage of any inventoried LWC unit to the extent of disqualifying the unit?

### **3.11.2 Analysis Area and Methodology**

#### **Analysis Area**

The impact analysis area for SDAs is a five-mile radius on either side of the transmission centerline for all Action Alternatives and is approximately 4,315 square miles (2,761,704 acres). Impacts to the entire SDA are addressed where the SDA analysis area only intersects a portion of the SDA.

#### **Methodology**

Effects to SDAs would occur if the GLWP would conflict with the goals, objectives, and resources a particular special designation is intended to protect (e.g., natural, recreational, scenic, scientific qualities). This section addresses potential impacts to SDA land designations in terms of Project activities directly or indirectly altering, conflicting, or requiring new management prescriptions for special designations. The LWC data is based on the 2017 BLM TFO inventory and the 2019 CCDO inventory. For specific resource impacts to the qualify factors of each SDA refer to the respective section in Chapter 3.

### **3.11.3 Affected Environment**

#### **3.11.3.1 Federal Designation**

The federally managed SDAs within SDA analysis area and within approximately five miles of the Armargosa Microwave Alternatives include 6 ACECs (Ash Meadows, Amargosa Mesquite, Big Dune, Coyote Springs, Steamboat Hot Springs Geyser Basin and Timber Mountain Caldera), 4 SRMAs (Las Vegas Valley, Nellis Dunes, Walker Lake, and Big Dune) 3 ERMAs (Bullfrog-Beatty, Southern Nevada, and Tonopah Hills), 29 inventoried LWC units, 3 WSAs (Mount Stirling Wilderness, Grapevine Mountains, and Gabs Valley Range), 1 Wilderness Area (La Madre Mountain Wilderness Area), 2 NCAs (Black Mountain-Pistone and Red Rock Canyon), 2 NWRs (Desert and Ash Meadows), and 1 National Monument (TUSK).

#### **Ash Meadows Areas of Critical Environmental Concern/Ash Meadows National Wildlife Refuge**

Ash Meadows is a desert wetland ecosystem containing spring-fed wetlands and alkaline desert uplands that provide habitat for at least 25 species found nowhere else in the world. Thirteen species are endangered or threatened and most depend on the isolated springs and wetlands found there. The 36,910-acre Ash Meadows ACEC surrounds the 23,000-acre Ash Meadows NWR (Figure 3-20), including all lands identified in the Recovery Plan for the Endangered and Threatened Species of Ash Meadows, Nevada, as essential habitat for the recovery of the listed species.

#### **Amargosa Mesquite Area of Critical and Environmental Concern**

The Amargosa Mesquite ACEC was designated in 1998 through the Las Vegas RMP. The approximately 7,000-acre ACEC is located in Nye County (Figure 3-20) and contains unique biological habitats that support special status wildlife, fish, and plant species, including the Ash Meadows pupfish. In the past, clays and zeolite minerals were mined within the ACEC and additional deposits may still exist (USGS 2006).

#### **Big Dune Area of Critical and Environmental Concern**

Big Dune ACEC (Figure 3-20) is a formation of sand dunes administered by the BLM. The 1,900-acre ACEC was designated through the 1998 Las Vegas RMP. The dunes rise to 500-foot-high and cover five square

miles. Big Dune ACEC is an important recreational area for off-road enthusiasts. This dune is home to five sensitive species, including two sensitive species of beetles that have approximately five acres set aside along the east side of the dunes for protection. Big Dune is one of only a handful of sand dunes in the country that “sing,” a humming sound produced as air is pushed through millions of tumbling sand grains.

### **Coyote Springs Areas of Critical Environmental Concern**

Coyote Springs ACEC is located in North Las Vegas along US 93 and is a broad alluvial valley between the Sheep Range, Arrow Canyon, and Meadow Valley ranges. The 51,528-acre ACEC contains designated Mojave desert tortoise critical habitat and provides habitat corridors between this species’ recovery units. The ACEC’s configuration is intended to provide functional habitat corridors between Mojave desert tortoise recovery units. It consists of the western portion of the Mormon Mesa Critical Habitat Unit that protects moderate to high densities of Mojave desert tortoises between the Desert NWR, the Arrow Canyon Wilderness, and the Mormon Mesa ACEC.

### **Steamboat Hot Springs Geyser Basin Area of Critical and Environmental Concern**

Steamboat Hot Springs Geyser Basin ACEC was first designated in 1982 in the Reno Management Framework Plan. It was redesignated in 1987 in the Lahontan RMP and the designation was brought forward in the 2001 Carson Field Office Consolidated RMP. The Steamboat Hot Springs Geyser Basin ACEC is a 40-acre area of unique geyser fields and other thermal features located south of Reno (Figure 3-19). Native Americans consider it sacred. Steamboat Hot Springs Geyser Basin is a State of Nevada historical landmark. Settlers quickly developed it into a therapeutic resort. At one point, the area included approximately 50 active hot springs, steam vents, and fumaroles. However, since the 1980s, all geyser activity has ceased likely due to the operation of a nearby geothermal power plant coupled with regional drought (NPS 2023). Currently, there is no public access to this ACEC.

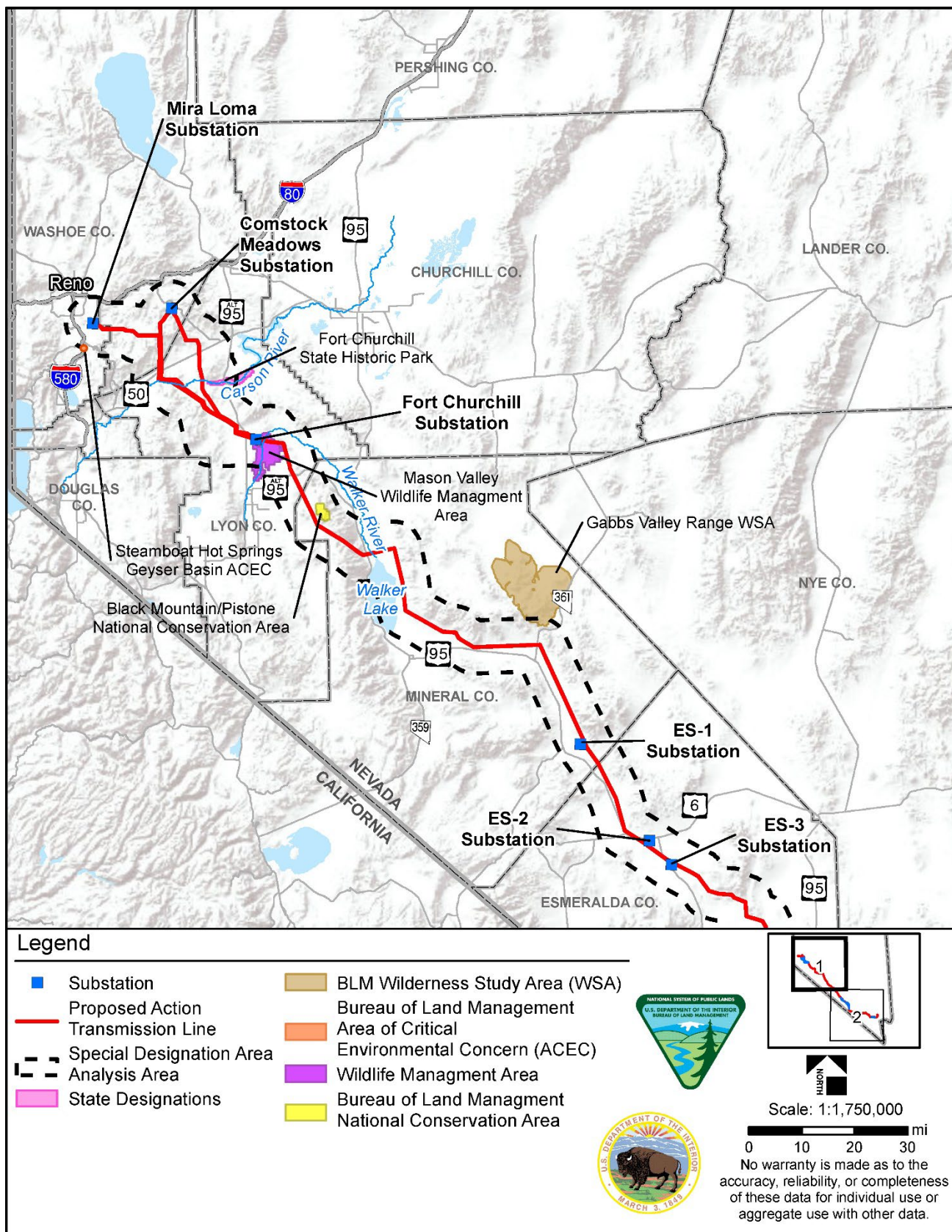
### **Timber Mountain Caldera Area of Critical and Environmental Concern**

The Timber Mountain Caldera ACEC was designated a National Natural Landmark by the NPS in 1973 and retains this designation. The ACEC was first designated by the BLM in the 1992 Nellis Air Force Range RMP to conserve geologic features throughout the 7,040-acre area (BLM 1998a) (Figure 3-20). The ACEC was redesignated by the BLM in 2004 in the NTTR RMP. The ACEC is a major part of the southwestern Nevada volcanic field.

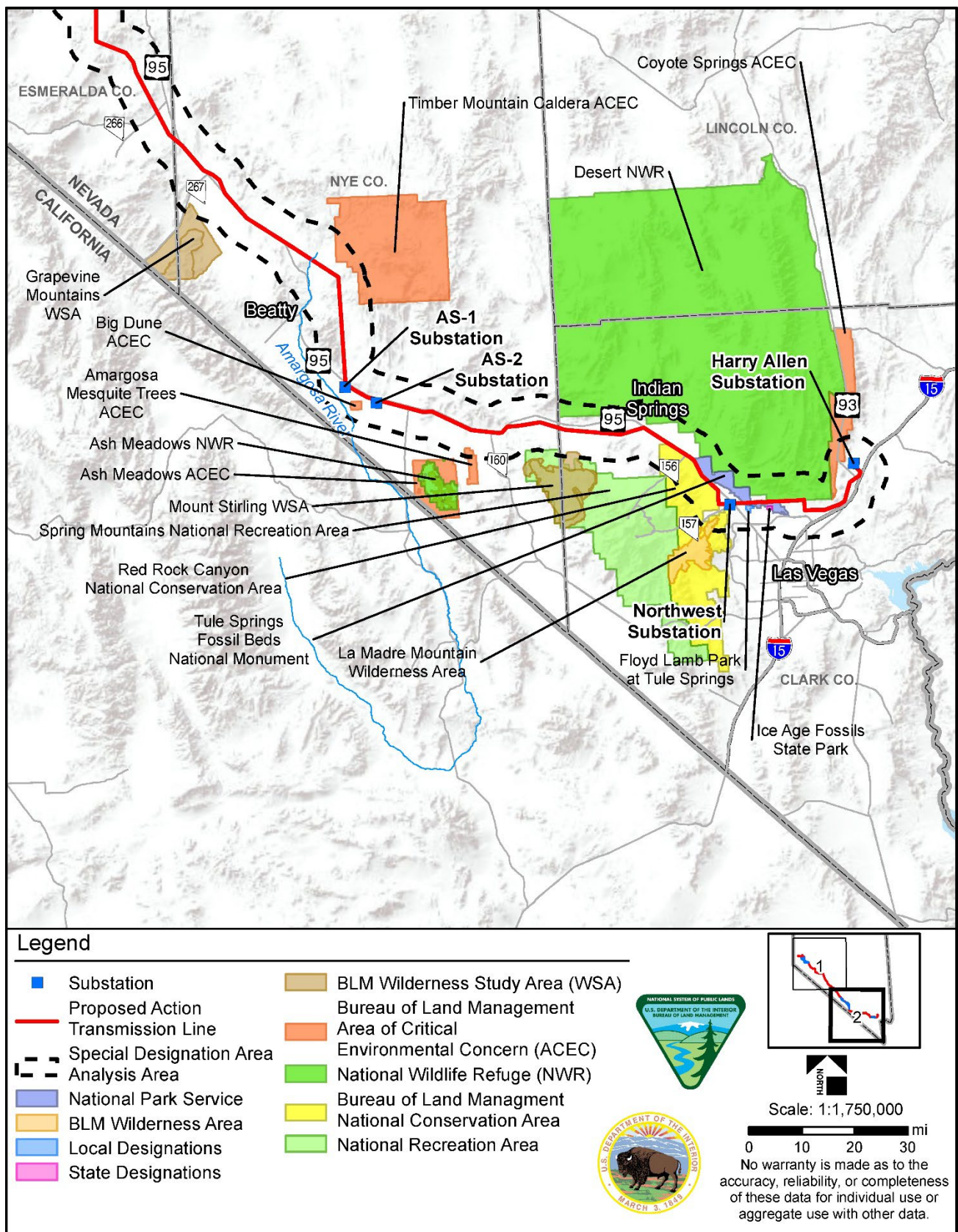
### **BLM Special Recreation Management Areas and Extensive Recreation Management Areas**

Public recreation lands administered by the BLM include SRMAs and ERMAs. Through their planning processes, the BLM designates SRMAs to provide people with specific recreational opportunities such as trails for hiking, mountain biking, and off-road vehicle use. These areas occur where high-quality natural resources and recreational activities (existing or potential) necessitate intensive recreation management or investment to accommodate intensive recreation management and where recreation is a principal management objective. Four SRMAs occur within the GLWP area: Nellis Dunes, Las Vegas Valley, Big Dune, and Walker Lake (Figure 3-21 and Figure 3-22).

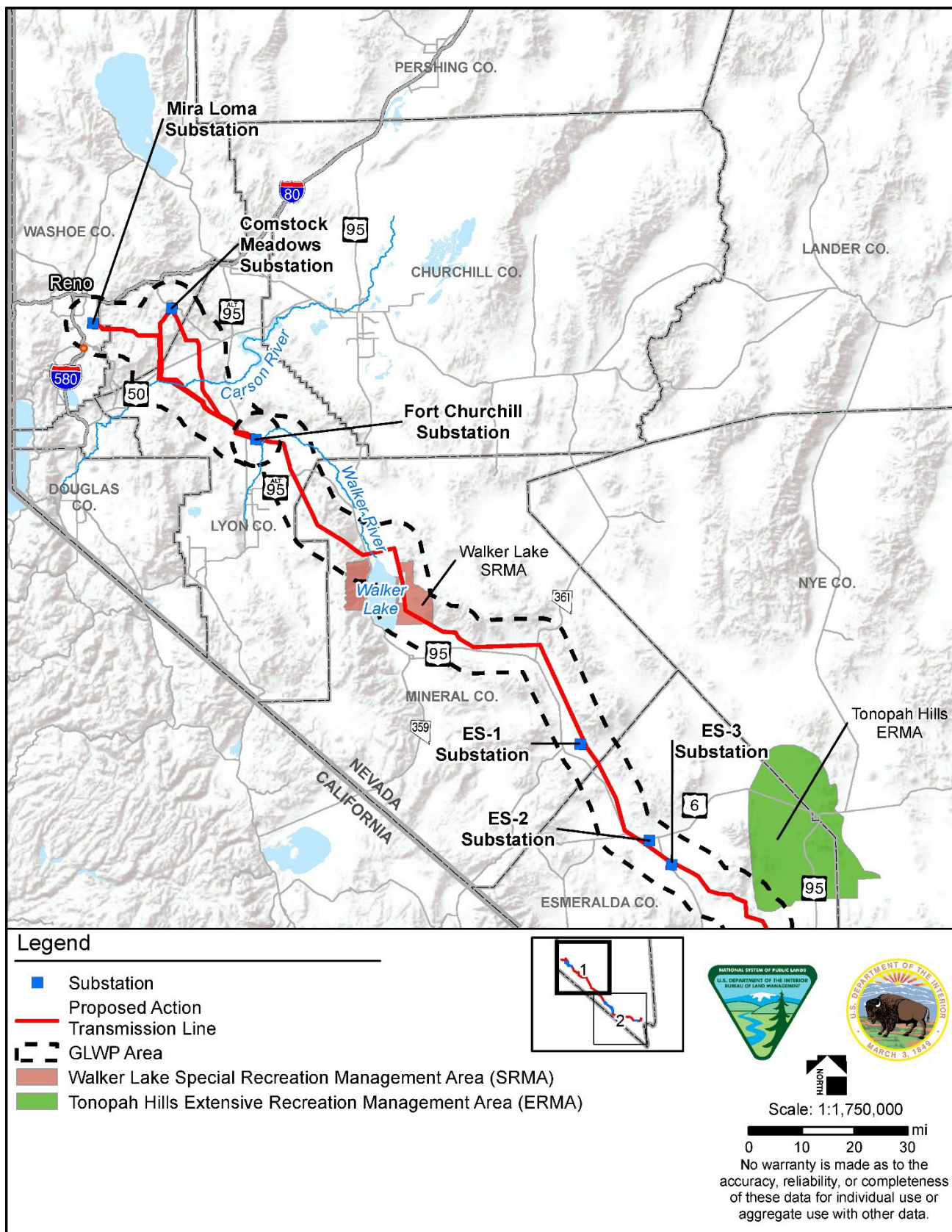




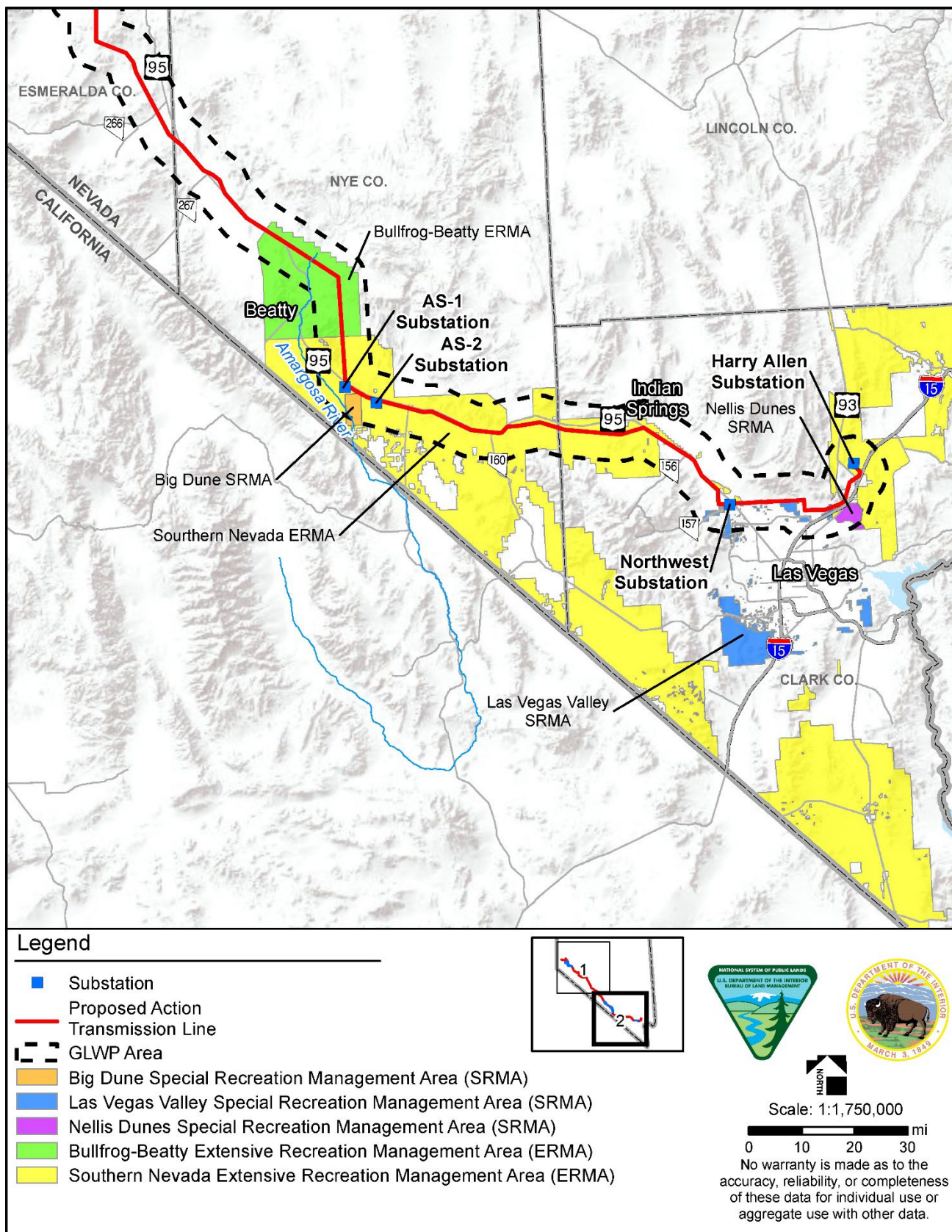
**Figure 3-19. Special Designation Areas (1 of 2)**



**Figure 3-20. Special Designation Areas (2 of 2)**



**Figure 3-21. SRMAs and ERMAs within the GLWP Area (1 of 2)**



**Figure 3-22. SRMAs and ERMAs within the GLWP Area (2 of 2)**

The management objective of Big Dune SRMA is to manage approximately 11,600 acres of the Big Dune area for moderate and casual off-road vehicle use, camping, and other casual recreation opportunities. The management objective of the Las Vegas Valley SRMA is to coordinate with county and city governments to manage approximately 197,300 acres in the Las Vegas Valley and facilitate the provision of open space areas, recreational trails, and parks for residents. The Nellis Dunes SRMA management objective is to manage approximately 10,000 acres of the Nellis Dunes as an open area for intensive off-road vehicle use and other recreation opportunities such as organized off-road vehicle events, casual off-road vehicle free play, picnicking, photography, and other non-off-road vehicle permitted activities (commercial and competitive). Specific management objectives for Walker Lake SRMA were not included in the Carson City Field Office Consolidated RMP (BLM 2001).

The BLM also designates ERMAAs which constitute all public lands outside SRMAAs. The ERMAAs are predominantly large areas that include extensive existing rural, urban, and industrial development. In these areas, recreation is non-specialized, dispersed, and does not require intensive management. Although recreation may not be the primary management objective in ERMAAs and recreational activities are subject to few restrictions, the areas still require management consideration to address recreational use and demand. Within the GLWP area, three ERMAAs occur including Bullfrog-Beatty, Southern Nevada, and Tonopah Hills (refer to Figure 3-19 and Figure 3-20).

**Lands with Wilderness Characteristics**

Lands that possess the qualities of a wilderness but have not been designated by Congress as a Wilderness Area or designated as a WSA are sometimes managed to maintain certain wilderness characteristics. Section 201 of FLPMA requires the BLM to maintain an inventory of all public lands and resources and other values, which includes wilderness characteristics. Lands with Wilderness Characteristics are generally roadless BLM-administered public land areas greater than 5,000 acres (or less if they adjoin a designated Wilderness Area or a WSA) that have maintained their natural character and are primarily undeveloped. Additionally, they provide outstanding opportunities for solitude or for primitive and unconfined recreation and may possess supplemental values including ecological, geological, scientific, educational, scenic, or historical values.

The BLM has inventoried and identified lands which possess wilderness characteristics within the SDA analysis area. The BLM’s TFO and CCDO completed inventories for LWC in 2017 and 2019, respectively. There are no LWC units in the BLM SNDO within the SDA analysis area. The list of the current 29 inventoried LWC units within the SDA analysis area are provided in Table 3-68 and illustrated in Figure 3-23 and Figure 3-24. The inventoried LWC units listed in Table 3-68 have not been evaluated through a planning effort, and therefore the BLM has not determined whether these units will be managed to protect their wilderness characteristics.

**Table 3-69. Inventoried LWC Units on BLM-Administered Lands within the GLWP Area<sup>a</sup>**

<b>Inventoried LWC Units</b>	<b>Acres</b>
NV-030-210A	5,699.7
NV-030-211A	5,470.8
NV-030-213A	9,665.2
NV-030-214A	30,060.4

**Table 3-68. Inventoried LWC Units on  
BLM-Administered Lands within the GLWP Area<sup>a</sup>  
(continued)**

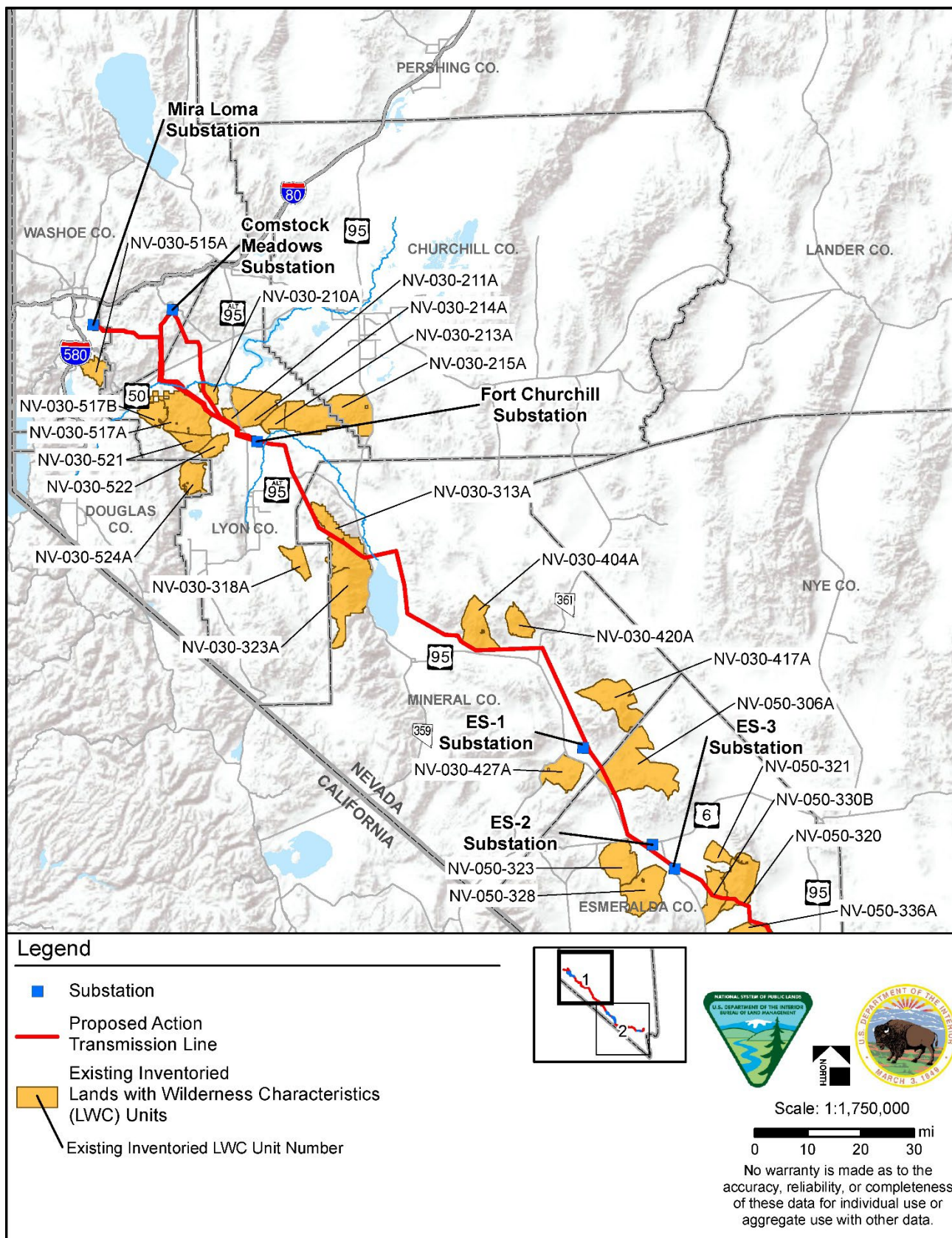
<b>Inventoried LWC Units</b>	<b>Acres</b>
NV-030-215A	61,109.5
NV-030-313A	16,993.1
NV-030-318A	11,518.6
NV-030-323A	64,248.6
NV-030-404A	27,744.5
NV-030-417A	36,076.8
NV-030-420A	13,319.9
NV-030-427A	22,393.1
NV-030-515	10,807.3
NV-030-517A	36,645.3
NV-030-517B	13,539.3
NV-030-521	11,165.9
NV-030-522	9,446.7
NV-030-524A	15,549.2
NV-050-03R-15	148,226.3
NV-050-306A	67,621.9
NV-050-320	31,809.8
NV-050-321	8,718.4
NV-050-323	27,573.5
NV-050-328	32,423.6
NV-050-330B	19,248.9
NV-050-336A	100,048.0
NV-050-346	14,610.9
NV-050-352A	9,199.6
NV-050-363	13,234.1
<b>Total</b>	<b>874,168.9</b>

*Table Acronym(s):* BLM – Bureau of Land Management; GLWP – Greenlink West Transmission Project; LWC – Lands with Wilderness Characteristics

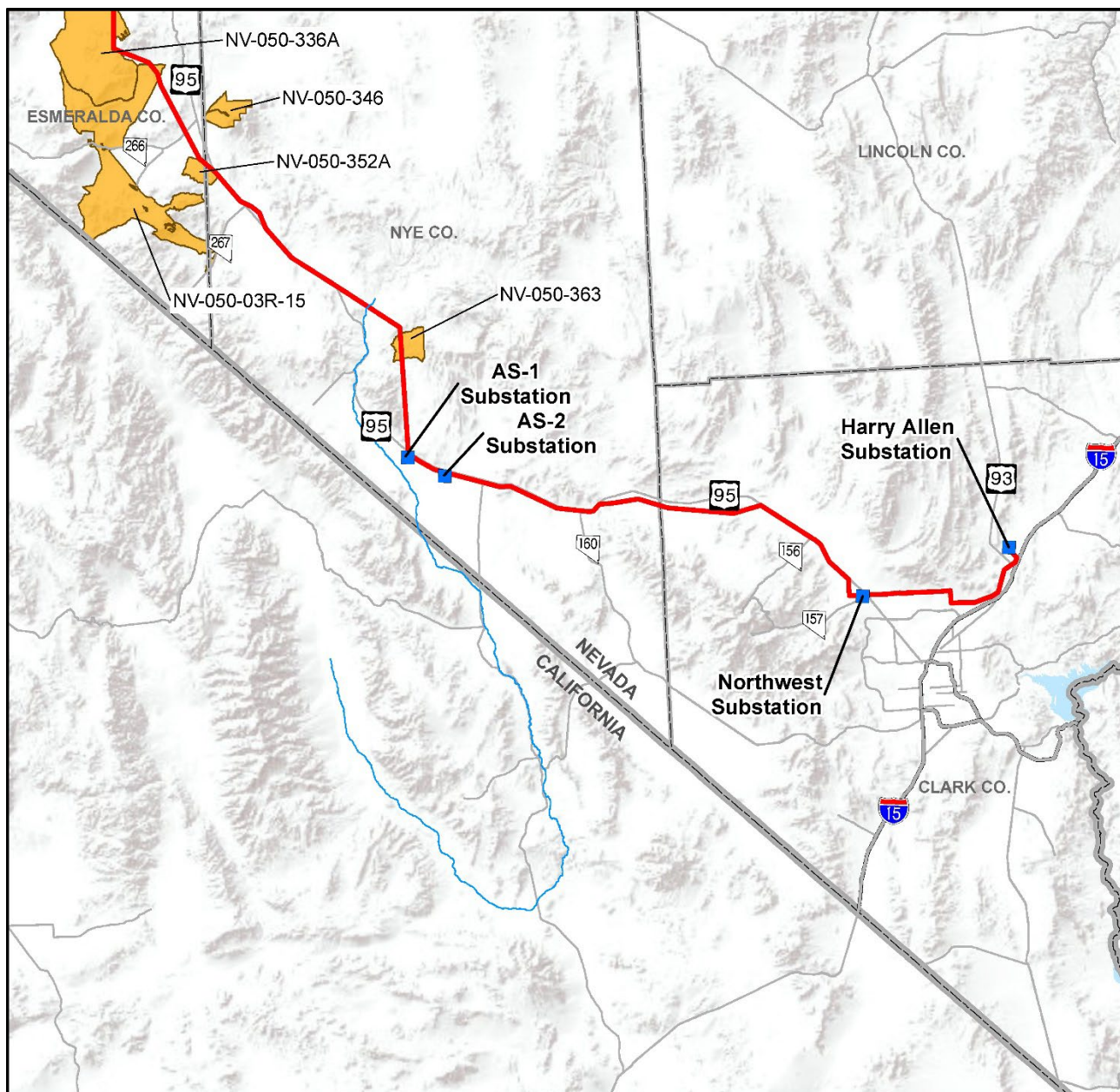
*Table Note(s):* <sup>a</sup>The GLWP area is five-mile radius on either side of the transmission centerline for all Action Alternatives and is defined as the SDA analysis area.

### **Mount Stirling Wilderness Study Area**

The Mount Stirling WSA is a 69,650-acre area covering the northernmost portion of the Spring Mountain Range that is jointly managed by the USFS and the BLM (refer to Figure 3-20). It is a rugged landscape with canyons, ridges, and heavy forest cover that provides challenging routes for hikers and opportunities for solitude and unconfined recreation. Its peaks offer scenic vistas of the surrounding valleys. Popular activities include hiking, rock climbing, photography, hunting, and horseback riding. The WSA is the traditional home of the Western Shoshone, Southern Paiute, and Chemehuevi Paiute Tribes.

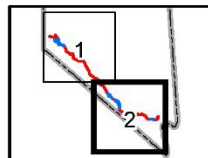


**Figure 3-23. Inventoried LWC Units (1 of 2)**

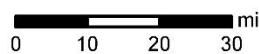


**Legend**

- Substation
- Proposed Action Transmission Line
- Existing Inventoried Lands with Wilderness Characteristics (LWC) Units
- Existing Inventoried LWC Unit Number



Scale: 1:1,750,000



No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure 3-24. Inventoried LWC Units (2 of 2)**



### **Grapevine Mountains Wilderness Study Area**

The BLM-administered Grapevine Mountains WAS (refer to Figure 3-20) is an extremely rugged area with mountain peaks rising to 7,694 feet. The area is comprised of three distinct vegetation communities: from hot alluvial benches of creosote and Joshua trees; foothills of big sage and salt brush; and cooler, higher-elevation areas consisting of pinyon, juniper, and big sage. Hikers visit the WSA to explore hidden places and experience views from the mountain peaks (Friends of Nevada Wilderness 2023).

### **Gabbs Valley Range Wilderness Study Area**

The BLM-administered Gabbs Valley Range WSA is located northeast of Hawthorne (refer to Figure 3-19) and is an extremely rugged area with mountain peaks rising to 8,353 feet. Red Rock Canyon is in the center of Gabbs Valley Range WSA and provides ridges and pinyon-juniper that isolate visitors from the human development found around the edge. There are three named mountains in Gabbs Valley Range WSA and the highest and the most prominent is Mount Ferguson. The WSA contains approximately 80,500 acres of BLM-administered land and one 40-acre private inholding. The Gabbs Valley Range is typical of the region's Great Basin mountain ranges with incised ephemeral drainages and isolated springs in addition to badlands in the far southern area of the WSA. Its size, shape, vegetation, drainage patterns, and highly branched ridge contribute to what the BLM describes as outstanding opportunities for solitude (BLM 2000).

### **La Madre Mountain Wilderness Area**

The La Madre Mountain Wilderness Area is a 47,180-acre area approximately 12 miles west of Las Vegas (refer to Figure 3-20). It is jointly managed by the USFS and the BLM. A variety of plant communities are found throughout its rugged canyons, ridges, and mountains. The area is highly scenic and offers excellent views of the area as well as prehistoric sites that include pictographs, petroglyphs, and rock shelters. Brownstone Canyon is located in the La Madre Mountain Wilderness and is listed on the NRHP.

### **Black Mountain-Pistone National Conservation Area**

In 2022, as part of the James M. Inhofe National Defense Authorization Act (NDAA) for fiscal year 2023, the US Congress established the Black Mountain-Pistone NCA to protect, conserve, and enhance the unique and nationally important historic, cultural, archaeological, natural, and educational resources of the Pistone Site on Black Mountain in Mineral County (H.R.7776). The approximately 3,365-acre NCA is administered by the BLM and located approximately 13 miles northwest of Walker Lake (refer to Figure 3-19). The NDAA states that the BLM shall provide the Tribal access to and use of cultural resources in the NCA and protect Tribal cultural resources and burial sites located in the NCA. The BLM is also responsible for developing a management plan for the NCA within two years of the enactment of the NDAA.

### **Red Rock Canyon National Conservation Area**

In 1990, Red Rock Canyon became Nevada's first congressionally designated NCA and the seventh to be nationally designated. NCAs protect exceptional opportunities for hunting, solitude, wildlife viewing, fishing, history exploration, scientific research, and a wide range of traditional uses (BLM 2021a). Red Rock Canyon NCA is located approximately 17 miles west of Las Vegas (refer to Figure 3-20) and offers a variety of activities including but not limited to, hiking, scenic drives, rock climbing, and mountain biking. Over two million visitors visit this 198,000-acre NCA annually.

### **Desert National Wildlife Refuge**

Desert NWR was established by EO Number 7373 of President Franklin D. Roosevelt on May 20, 1936, to protect desert bighorn sheep and other wildlife resources. Originally named the Desert Game Range and under the joint administration of the USFWS and the BLM, it contained a total of 2,250,000 acres, including lands both north and south of US 95. Public Land Order 4079, issued on August 26, 1966, and corrected on September 23, 1966, revoked EO 7373, changed the name to Desert NWR, reduced its size to 1,588,000 acres, and transferred sole administration to the USFWS. Between 1935 and 1989, an additional 760 acres in the vicinity of Corn Creek were acquired under various authorities, including the Migratory Bird Conservation Act, ESA, and Refuge Recreation Act. Currently, the Desert NWR encompasses over 1.6 million acres.

The NTTR was originally established on October 29, 1940, by EO 8578. Subsequently, the NTTR was reestablished in the Military Lands Withdrawal Act of 1999 (Title XXX of Public Law [PL] 106-65), as amended by the William M. (Mac) Thornberry NDAA for Fiscal Year 2021 (PL 116-283). The NTTR overlays 846,000 acres of the Desert NWR. This “Joint-Use Area” is managed for “the purposes for which the refuge was established, and to support current and future military aviation training needs consistent with the current memorandum of understanding between the Department of the Air Force and the Department of the Interior” (USFWS 2020a).

The NWR System is a subsidiary of the USFWS and manages a network of lands and waters across the US to conserve, protect, and enhance America’s fish, wildlife, and plants. The Desert NWR is the largest national wildlife refuge in the lower 48 states and is located within the traditional and ancestral homelands of *Newe* (Western Shoshone) and *Nuwu* (Southern Paiute)/*Nuwuvi* (Chemehuevi) tribes. Encompassing six major mountain ranges and seven distinct life zones, the Desert NWR is home to approximately 320 bird species, 53 mammal species, 35 reptile species (including Mojave desert tortoise), 4 amphibian species, and 500 plant species. Over 1.3 million acres of the NWR are proposed Wilderness and have been managed as de facto wilderness since 1974 (refer to Figure 3-20).

### **Tule Springs Fossil Beds National Monument**

Congress established the 22,986-acre TUSK in 2014 to “conserve, protect, interpret, and enhance for the benefit of present and future generations the unique and nationally important paleontological, scientific, educational, and recreational resources and values of the land” (PL 113-291, sec. 3092). The TUSK lies north of Las Vegas and extends along US 95 as shown on Figure 3-20. Currently, TUSK is in the process of developing a General Management Plan which will set the management philosophy and guide the National Monument for the next 15 to 20 years. Until completion of the General Management Plan, TUSK will have a Foundation Document to provide basic guidance for planning and management decisions (NPS 2019a). The core components of the Foundation Document include a brief description of the TUSK and its purpose, significance, fundamental resources and values, other important resources and values, and interpretive themes. Along with the core components, the Foundation Document includes special mandates and administrative commitments, provides a focus for park planning activities, and establishes a baseline from which future planning documents are to be developed. The Foundation Document also allows for the establishment of a 400-foot ROW as outlined in the TUSK enabling legislation for the construction and maintenance of high-voltage renewable energy transmission facilities as long as these facilities do not conflict with other previously authorized ROWs.

### **Spring Mountains National Recreation Area**

The Humboldt-Toiyabe National Forest encompasses 6.3 million acres. Portions of the Spring Mountains National Recreation Area (SMNRA) are within the SDA analysis area (refer to Figure 3-20). The SMNRA is comprised of approximately 316,000 acres of rugged mountains with cliffs, steep hillsides, and deep narrow canyons. Bristlecone pine (*Pinus longaeva*), ponderosa pine (*Pinus ponderosa*), and white fir (*Abies concolor*) forests and pinyon-juniper woodlands cover the landscape. Recreation opportunities include trails, picnic areas, and campgrounds (for use by individuals and groups) (USFS 2022). There are no SMNRA designated recreation facilities within the SDA analysis area.

#### **3.11.3.2 State Designations**

### **Mason Valley Wildlife Management Area**

The Nevada Board of Wildlife Commissioners manages the Mason Valley WMA. While funding sources for Nevada's WMAs provide guidance to management objectives, these areas are generally created for the preservation, protection, management, and restoration of wildlife and wildlife habitats at a state level. The Mason Valley WMA consists of approximately 17,550.7 acres of land and is located about approximately 75 miles southeast of Reno (refer to Figure 3-19) (NDOW 2009). The Mason Valley WMA encompasses the Walker River floodplain and has a variety of habitat supporting an abundance of fish and wildlife biodiversity. The Mason Valley WMA has prioritized wetland protection and waterfowl activities and considers all other uses secondary.

### **Ice Age Fossils State Park**

Ice Age Fossils State Park is one of Nevada's newest state parks and was announced in January 2017. Surrounded on three sides by TUSK (refer to Figure 3-20), this state park consists of approximately 315 acres of some of the most impressive records of Ice Age fossils in the world as well as the rare bear paw poppy plant and other native plants. The park is undeveloped with hiking, running, photography, and interpretation as permitted activities.

### **Fort Churchill State Historic Park**

Fort Churchill State Historic Park was established as a state park in 1957 and declared a National Historic Landmark in 1961. Fort Churchill was built in 1861 to provide protection for early settlers and guard Pony Express mail runs. Today, visitors can walk designated trails to study the ruins of the fort. The park is closely associated with the renovated Buckland Station approximately a half mile to the east, an important way station for 1800s pioneer travelers on the Overland Route. With approximately 3,200 acres along the Carson River (refer to Figure 3-19), the park provides recreation for campers, hikers, bird watchers, canoeists, and equestrians.

#### **3.11.3.3 Local Government Designations**

### **Floyd Lamb Park at Tule Springs**

The only major designated municipal recreation area within the SDA analysis area is Floyd Lamb Park at Tule Springs. Floyd Lamb Park at Tule Springs centers around Tule Springs and includes a series of small lakes. Surrounded by an urban setting in Las Vegas (refer to Figure 3-20), this 680-acre park provides a respite from the desert with tree-shaded walking/jogging paths showcasing lush vegetation and lakes, picnic areas, and a historic working ranch. Horseback riding, biking, and fishing are popular activities at the park.

### **3.11.4 Environmental Consequences**

This section describes the impacts to SDAs associated with the construction and operations and maintenance of the GLWP. Effects on SDAs would occur if construction and O&M conflicts with the objectives of the special designation.

#### **3.11.4.1 Direct and Indirect Impacts from No Action Alternative**

It is anticipated that under the No Action Alternative, the current uses and trends for the SDAs and associated resources would continue to occur. There would be no impacts to SDAs attributed to the construction, O&M, and decommissioning of the GLWP under the No Action Alternative.

#### **3.11.4.2 Direct and Indirect Impacts from Common to All Action Alternatives**

##### **Construction**

Potential impacts from construction activities that would be common to all Action Alternatives include direct ground disturbance, temporary increases in ambient noise levels, and dust in areas where the GLWP would intersect SDAs. Designated values of SDAs not directly crossed by the Action Alternatives may be indirectly impacted. Potential indirect impacts from construction include user disruption from noise, dust, and traffic increases from construction equipment moving materials throughout the temporary ROW area. Indirect impacts would be proportional to distance and visibility from adjacent SDAs and have the potential to distract recreation users and disturb or displace wildlife within SDAs. Impacts to SDAs during construction would be short-term in nature and would cease with the completion of construction activities.

Where the Action Alternatives would intersect existing inventoried LWC units, there would be impacts from construction activities including direct ground disturbance and temporary increases in ambient noise levels. Ground disturbance would not occur across all the temporary or permanent ROW areas. This disturbance would temporarily impact opportunities for solitude, primitive and unconfined recreation, and feeling the effect of naturalness in the immediate area. During construction, the work and staging areas would affect a portion of a given existing inventoried LWC unit's size, naturalness, opportunities for solitude or primitive and unconfined recreation, and supplemental values, where applicable.

##### **Operations and Maintenance**

Potential impacts common to all Action Alternatives could include indirect impacts where GLWP facilities would be sited near SDAs. Impacts associated with O&M activities could include disturbance to wildlife and recreationists during annual inspection utilizing helicopters, all-terrain vehicles, or line trucks. Emergency maintenance would likely be necessary under certain circumstances as well. The Action Alternatives would have the potential to alter recreational access to the SDAs. Maintenance roads constructed would provide improved or increased access to the SDAs, potentially leading to increased OHV use. Excess OHV use could conflict with management objectives for some SDAs. If the appropriate land management agency or landowner allows the roads to be permanent and open to the public, they could potentially indirectly contribute to the creation of social or unauthorized roads and trails within an SDA. This type of impact would most likely occur where the permanent ROW is relatively close to the SDA boundary, such as at the Desert NWR and Red Rock Canyon NCA.

Localized areas of the permanent ROW would be cleared of trees and large vegetation to allow for maintenance of the transmission line and related facilities, where needed. Compared to periods of construction, regular maintenance activities associated with substations and transmission lines would be

more infrequent and shorter in duration. During O&M, visibility of the transmission line and GLWP components and vegetation clearing in the permanent ROW area may result in changes to the natural setting. The magnitude of change would depend on the characteristics of the landscape such as type of terrain, landforms, and vegetation; physical distance to GLWP components; and backdrop conditions.

Motorized travel along the ROW (for inspection, maintenance, and brush-clearing) that would occur adjacent to a given existing inventoried LWC unit would result in sounds that would degrade the natural setting and affect people's opportunities for solitude and primitive recreation. In a given existing inventoried LWC unit intersected by the GLWP, sound generated during O&M (including helicopters) would occur intermittently for the life of the GLWP. Sounds and noise levels would be site-specific, temporarily impact wilderness characteristics, and would not persist for extended periods of time. Construction of the GLWP would not alter the management of SDAs.

### **Decommissioning**

Decommissioning the GLWP would require a Reclamation Plan and a Decommissioning Plan in accordance with the federal ROW agencies as appropriate. Impacts from decommissioning-related activities on SDAs would be similar to impacts during construction, but to a lesser degree.

#### **3.11.4.3 Direct and Indirect Impacts from Proposed Action**

### **Construction and Operations and Maintenance**

The Proposed Action would directly cross TUSK; Mason Valley WMA; Big Dune, Las Vegas Valley, and Walker Lake SRMAs; and Bullfrog-Beatty and Southern Nevada ERMA. Additionally, the Proposed Action would run immediately adjacent to the boundary of Red Rock Canyon NCA, Desert NWR, and Fort Churchill State Historic Park. During construction, the Proposed Action would affect the experience of recreational users at the SDAs depending on the time of day, atmospheric conditions, viewing direction, and actual distance from the Proposed Action active construction area. Operations and maintenance activities within the Proposed Action permanent ROW area could include disturbance to wildlife and recreationists during annual inspection utilizing helicopters, all-terrain vehicles, or line trucks. Emergency maintenance would likely be necessary under certain circumstances as well. Additionally, the presence of new and improved access roads within, or adjacent to, SDAs may increase the potential for unauthorized OHV use and illegal dumping. This would result in an increased chance for social (unauthorized) roads and user-created route proliferation.

Coyote Springs ACEC, La Madre Mountain Wilderness Area, Mount Stirling WSA, Big Dune ACEC, Amargosa Mesquite ACEC, Timber Mountain Caldera ACEC, Grapevine Mountains WSA, Gabbs Valley Range WSA and Steamboat Hot Springs Geyser Basin ACEC are greater than approximately 0.5 miles from the Proposed Action. An existing access road that requires improvement for the Proposed Action is within approximately 0.5 miles of the Black Mountain-Pistone NCA. The opportunity for solitude in WSAs and Wilderness Areas and habitat and resources conservation in the ACECs and NCA would not be impacted in remote areas during construction of the Proposed Action. While no direct effects would result from implementation of the Proposed Action, views toward and from these SDAs may be affected depending on the proximity to the GLWP. The Proposed Action would not alter, conflict with, require new management prescriptions and objectives, or otherwise physically or administratively affect the designations of these SDAs.

### **Ice Age Fossils State Park**

The Proposed Action would be located approximately 0.75 miles from the northern boundary of the Ice Age Fossils State Park. This alternative would not alter, conflict with, require new management

prescriptions and objectives, or otherwise physically or administratively affect the designations of this SDA. Potential indirect impacts from construction include user disruption from noise, dust, and traffic increases from construction equipment moving materials throughout the temporary ROW area. These construction-related activities have the potential to distract recreation users of the Park. Impacts to the SDA during construction would be short-term in nature and would cease with the completion of construction activities.

Although there would be no direct impacts from the Proposed Action, the 525-kV transmission line would be visible in the FG of the Park's trails and Visitor Center. An existing transmission line is located within approximately 320 feet of the Park's northern boundary and is a monopole with a painted gray finish. There is an established residential development and high school adjacent to the west and south of the Park. Because of the surrounding urban development, the presence of the existing transmission line within the immediate FG of the Park, and the backdrop of the Las Vegas Range, the Proposed Action would begin to attract attention but would not dominate the views of the Park's visitors.

### **TUSK**

An approximately 1.5-mile segment of the Proposed Action would cross the TUSK. The Proposed Action permanent ROW area would remove less than one percent (approximately 105 acres) of the SDA. Except for two temporary non-motorized trails, three information kiosks, and limited parking, there are no other public facilities at the TUSK at this time. Access to the TUSK would not be prohibited but would be restricted during construction for brief periods for public safety considerations. The increases in ambient noise levels, the presence of heavy equipment, and dust generated during construction would cease with the completion of construction activities. This portion of TUSK is adjacent to an existing urban setting associated with North Las Vegas where heavy construction activities and equipment are common. Construction of the Proposed Action is anticipated to take less than four months to complete. Proposed Action would be within the Foundation Document-established 400-foot ROW outlined in the TUSK enabling legislation and therefore would not alter, conflict with, or require new management prescriptions and objectives for this SDA.

### **Mason Valley WMA**

The Proposed Action would cross within the Mason Valley WMA for approximately 3.5 miles following next to a developed railway corridor (Thorne Branch). The Thorne Branch railway corridor is active as of 2020 (NDOT 2020a) and was accounted for when the Mason Valley WMA was created. The Proposed Action permanent ROW area would remove less than one percent (approximately 82.2 acres) of the SDA. The Proposed Action would result in direct impacts to the WMA from the removal or crushing of vegetation for the construction of the maintenance and new access roads and the improvements to existing access roads. Once the vegetation is reestablished following construction, existing vegetation would not be impacted by O&M because the lower vegetation in this area of the permanent ROW would not be considered incompatible vegetation with the GLWP. The presence of the transmission line within Mason Valley WMA would conflict with management prescriptions to provide for the preservation, protection, management, and restoration of wildlife and wildlife habitats.

### **SRMAs and ERMAs**

The Proposed Action would cross Las Vegas Valley, Big Dune, and Walker Lake SRMAs. Approximately 9.1 miles of the 525-kV transmission line would cross the Las Vegas Valley SRMA next to the border of the Desert NWR. The Proposed Action would not interfere with this SRMA's management objective to facilitate the provision of open space areas, recreational trails, and parks. Approximately 0.2 miles of the 525-kV transmission line would cross through the northeast corner of Big Dune SRMA. There are no

designated recreation facilities in this corner of the 11,600-acre SRMA and there would be no restrictions to recreational use of the area crossed by the transmission line. Approximately 6.4 miles of the Proposed Action would cross the Walker Lake SRMA. The 525-kV transmission line would be routed close to the foothills of the Gillis Range and parallel to an existing transmission line. There are no designated trails or other recreation facilities in this portion of the Walker Lake SRMA and the Proposed Action would be over approximately two miles from the lake's shoreline. There would be no restrictions on the recreational use of the area crossed by the 525-kV transmission line. The Proposed Action would sustain the existing management objectives of the three SRMAs within the SDA analysis area and not impact the provision of open space areas, recreational trails, and parks.

The Proposed Action would also cross Southern Nevada and Bullfrog-Beatty ERMAs. During construction, improved access through the two ERMAs could conflict with user demand and potentially increase user conflicts. The improved access roads may increase the potential for unauthorized OHV use, illegal dumping, and increase the chance for user-created route proliferation. Although recreation may not be the primary management objective for these ERMAs, the areas require management consideration to address recreational use and demand. Impacts to the Southern Nevada and Bullfrog-Beatty ERMAs from the Proposed Action would not alter or require new management prescriptions and objectives for these ERMAs.

The Proposed Action would not cross the Nellis Dunes SRMA or Tonopah Hills ERMA. The Nellis Dunes SRMA is separated from the Proposed Action by I-15. Construction crews may access construction areas using an approximate six-mile segment of I-15. Existing paved roads in the Tonopah Hills ERMA may be used to move construction crews, materials, and equipment to construction areas. Potential indirect impacts may include additional traffic, noise, and dust during construction in the immediate vicinity. Access to the Nellis Dunes SRMA and Tonopah Hills ERMA may be restricted for short durations for public safety during active construction periods, however construction would not require any new road construction or permanent access closures to these SDAs. Any impacts associated with construction activities would be temporary and cease once construction is complete. The impacts from construction-related noise, dust, and increased vehicles in the viewshed would be negligible due to the small portion of these SRMAs and ERMAs that would be impacted. The construction of the GLWP would not alter or require new management prescriptions and objectives for the SRMAs or ERMAs. For detailed impacts to recreation experience, refer to Section 3.13 Land Use, Realty, and Indian Trust Assets.

#### **Red Rock Canyon NCA and Desert NWR**

The Proposed Action would run immediately adjacent to the Red Rock Canyon NCA border for approximately 15.6 miles and new access roads may be created from an existing access road to construct each transmission structure. The Proposed Action would include a new access road that would run immediately adjacent to the Desert NWR boundary for approximately 7.1 miles. The temporary and permanent ROW would be adjusted along the Red Rock Canyon NCA and Desert NWR borders respectively and would lie entirely outside of the two SDAs. Any Proposed Action-related activities and vehicle traffic during construction may reduce the appeal for dispersed recreational activities at the Red Rock Canyon NCA and Desert NWR. Dispersed recreation activities such as hiking, camping, bird watching, or equestrian use would be temporarily affected as construction and O&M noises, visual disturbances, and/or the presence of other humans could detract from these recreation opportunities and activities. The presence of new and improved access roads may increase the potential for unauthorized OHV use and illegal dumping, especially adjacent to the Red Rock Canyon NCA and Desert NWR borders. This would result in an increased chance for social (unauthorized) roads and user-created route proliferation. Any illegal and/or unauthorized use of access roads would be enforceable by federal law enforcement officers, or

other federal, Tribal, state, and local jurisdiction law enforcement (e.g., county, state). Any potential construction- or O&M-related impacts on recreation opportunities, activities, and experiences would be localized and temporary in nature. The Proposed Action would not alter, conflict with, or require new management prescriptions and objectives, or otherwise physically or administratively affect the designations of the two SDAs.

**Operations and Maintenance**

Impacts to existing inventoried LWC units would occur when the transmission line or new access road would cross or subdivide an inventoried LWC unit and create one or more sub-units less than 5,000 acres in size. Because the Wilderness Act establishes 5,000 acres as the minimum size threshold for Wilderness Areas, areas that fall below this threshold no longer qualify as LWC (16 USC § 1131 [c]). An existing inventoried LWC unit falling below this size threshold would be considered a “lost opportunity” for wilderness management and would be a direct impact from the GLWP.

Table 3-69 identifies the existing inventoried LWC units that would be intersected by the Proposed Action and how much of the unit would remain below the 5,000-acre threshold. Figure 3-25 illustrates the impact of the Proposed Action on the existing inventoried LWC Unit NV-030-210A that would result in an area falling below the 5,000-acre threshold. Figure 3-26 shows the impact of the Proposed Action on the existing inventoried LWC Unit NV-050-320 where the Proposed Action would occupy a portion of the unit but would not disqualify the unit’s status. Overall, the Proposed Action would cross 11 inventoried LWC units, disqualify two existing inventoried LWC units (NV-030-210A and NV-030-211A), and result in the loss of approximately five percent (23,857.0 acres) of inventoried wilderness characteristics within the TFO and Stillwater Field Office. Appendix Y contains figures of the existing inventoried LWC units that would either be disqualified or result in the loss of inventoried wilderness characteristics from the relevant Action Alternatives.

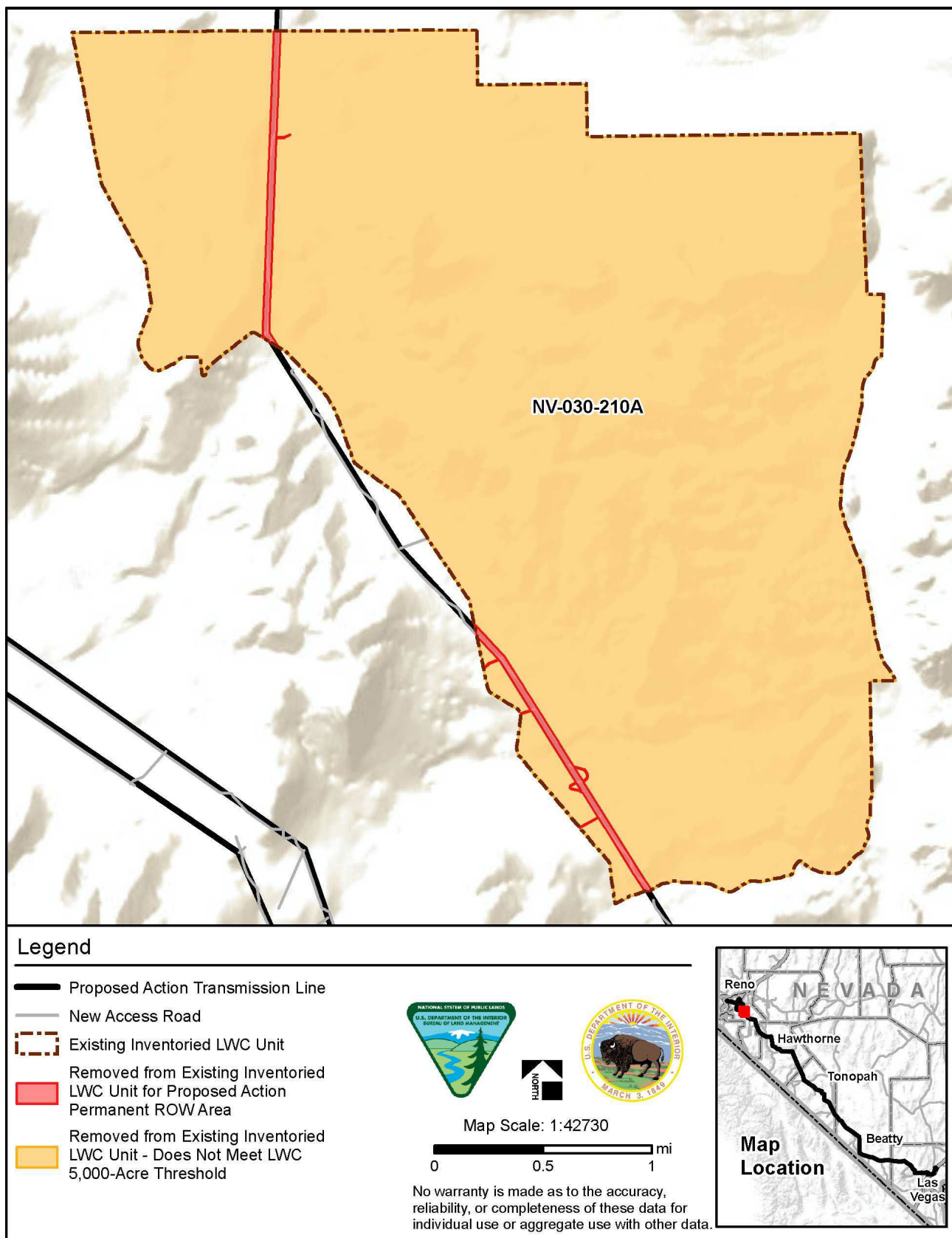
**Table 3-70. Estimated Acres of Inventoried LWC Units Crossed by the Proposed Action**

<b>BLM Field Office</b>	<b>Inventoried LWC Unit Number</b>	<b>Total Inventoried LWC Unit Area (acres)</b>	<b>Direct Impact<sup>a</sup> (acres)</b>	<b>Indirect Impact<sup>a</sup> (acres)</b>	<b>Total Area Removed from Inventoried LWC Unit (acres)</b>
Stillwater	NV-030-210A	5,699.7	58.0	5,641.7	5,699.7
Stillwater	NV-030-211A	5,470.8	139.1	5,331.7	5,470.8
Stillwater	NV-030-313A	16,993.1	137.0	73.3	210.3
Stillwater	NV-030-404A	27,744.5	189.6	156.4	346.0
Tonopah	NV-050-03R-15	148,226.3	65.2	1,449.0	1,514.2
Tonopah	NV-050-306A	67,621.9	131.7	3,319.8	3,451.5
Tonopah	NV-050-320	31,809.8	97.1	3,056.3	3,153.4
Tonopah	NV-050-330B	19,248.9	112.2	676.3	788.5
Tonopah	NV-050-336A	100,048.0	223.6	86.2	309.8
Tonopah	NV-050-352A	9,199.6	44.2	43.2	87.3
Tonopah	NV-050-363	13,234.1	106.4	2,756.6	2,863.0
<b>Total</b>	<b>-</b>	<b>445,296.7</b>	<b>1,304.1</b>	<b>22,590.4</b>	<b>23,894.6</b>

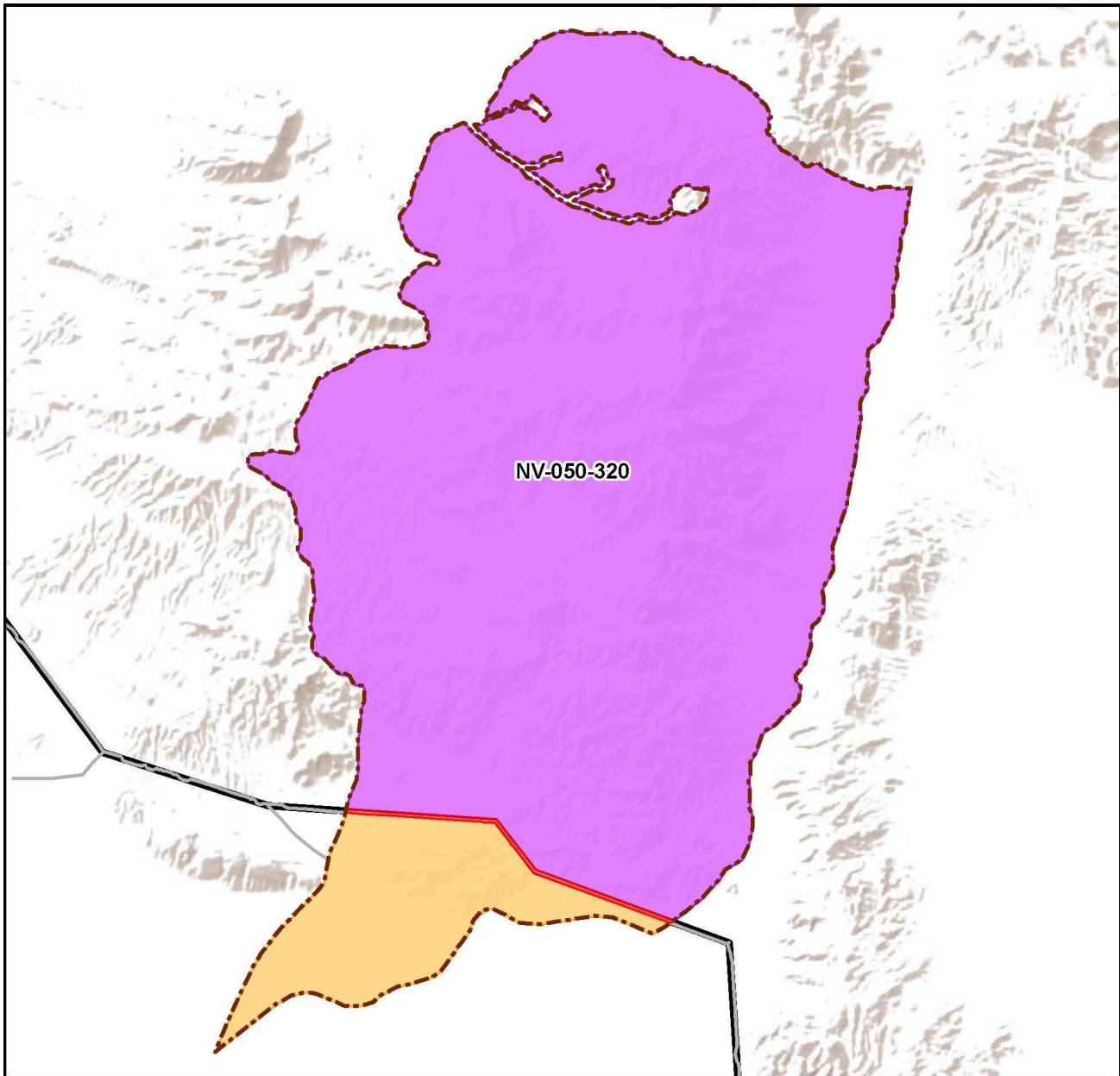
*Table Acronym(s):* BLM – Bureau of Land Management; LWC – Lands with Wilderness Characteristics

*Table Note(s):* <sup>a</sup>Direct impacts would occur because the presence of the Action Alternatives in an inventoried LWC unit would be inconsistent with wilderness characteristics. Indirect impacts to inventoried LWC units would occur when the Action Alternatives would subdivide an inventoried LWC unit, creating one or more sub-units that are less than 5,000 acres.











**Figure 3-25. Proposed Action Impact on Inventoried LWC Unit NV-030-210A**



**Legend**

-  Proposed Action Transmission Line
-  New Access Road
-  Existing Inventoried LWC Unit
-  Removed from Existing Inventoried LWC Unit for Proposed Action Permanent ROW Area
-  Removed from Existing Inventoried LWC Unit - Does Not Meet LWC 5,000-Acre Threshold
-  Remaining Existing Inventoried LWC Unit



Map Scale: 1:120300



No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.



**Figure 3-26. Proposed Action Impact on Inventoried LWC Unit NV-050-320**

### **Decommissioning**

Decommissioning the GLWP would require a Reclamation Plan and a Decommission Plan in accordance with the federal ROW agencies as appropriate. Impacts from decommissioning-related activities on SDAs would be similar to those during construction, but to a lesser degree.

### **Additional Measures to Avoid and/or Minimize Impacts**

The implementation of EMMs (Appendix C. EMMs AIR\_4, AIR-7, AIR-9, AIR 16, CON-7, NOISE\_5, TRAF\_TRANS-1, and VIS-1 through VIS-14) would help to avoid and/or minimize impacts on SDAs.

### **Compensatory Mitigation**

The BLM considers wilderness characteristics to be both an important and sensitive resource. Therefore, the BLM would require the Proponent to provide compensatory mitigation for inventoried areas identified as having wilderness characteristics that would be impacted by the GLWP, but where the BLM has not yet considered, through a land use planning process, whether to protect such values. The BLM would not require compensatory mitigation for impacts to inventoried LWC units that were identified as part of a land use planning process wherein the BLM has made an affirmative management decision not to protect wilderness characteristics, unless the respective land use plan states otherwise. The BLM would calculate the final resulting disqualified inventoried LWC acres based on the final GLWP design. The Proponent would provide the funding prior to the BLM's issuance of the ROW Notice to Proceed.

Measures to reduce the visibility of the monopole structures from Ice Age Fossils State Park were discussed with the Nevada Division of State Parks. The Park's staff recommended changing the finish of the monopole to a Corten finish (dark brown) to help reduce the color contrast of the structures in the landscape. The BLM has added a specific mitigation measure to reduce the color contrast of the structures of the Proposed Action. Brown, self-weathering (Corten) finish structures would be used between the crossing of the proposed transmission line over Decatur Road near the Desert NWR boundary east, approximately 7.1 miles, to where the Proposed Action would turn south near the extension of Lamb Boulevard and the Desert NWR boundary.

#### **3.11.4.4 Direct and Indirect Impacts from Losee Transmission Line Route Group**

### **Construction, Operations and Maintenance, and Decommissioning**

The Proposed Action would include a new access road that would run immediately adjacent along to the Desert NWR boundary. This may result in an increased opportunity for user-created route proliferation. Any illegal and/or unauthorized use of access roads would be enforceable by federal law enforcement officers, or other federal, Tribal, state, and local jurisdiction law enforcement (e.g., county, state). In addition, EMM OPS-8 (Appendix C) provides for gate and fencing installation in areas where OHV use would need to be prohibited. EMM TRAF\_TRANS-3 (Appendix C) addresses vehicular access management with the appropriate land management agencies. The Losee Transmission Alternative A would not run adjacent to the Desert NWR border, which would reduce the potential for unauthorized access to the SDA. The Desert NWR would experience no direct effects from implementation of the Proposed Action or Losee Transmission Alternative A. However, views toward and from this SDA may be affected and are discussed in Section 3.15 Visual Resources. Both the Proposed Action and Losee Transmission Alternative A would cross portions of the Las Vegas Valley SRMA. The Proposed Action would cross approximately one mile of the SRMA along the boundary of the Desert NWR, while Losee Transmission Alternative A would cross approximately three miles (one mile along the extension Grand Teton Drive and approximately two miles along the extension of Losee

Road). Neither the Proposed Action nor Losee Transmission Alternative A would interfere with this SRMA's management objective to facilitate the provision of open space areas, recreational trails, and parks.

#### **3.11.4.5 Direct and Indirect Impacts from TUSK Transmission Line Route Group**

##### **Construction, Operations and Maintenance, and Decommissioning**

The TUSK Transmission Alternative B and the Proposed Action would cross into and would be parallel to the TUSK boundary for approximately 1.5 miles. The TUSK Transmission Alternative B and the Proposed Action would be within the Foundation Document-established 400-foot ROW outlined in the TUSK enabling legislation and therefore would not alter, conflict with, or require new management prescriptions and objectives for this SDA. The TUSK Transmission Alternative B would require a more permanent ROW area than the Proposed Action.

The Ice Age Fossils State Park, Floyd Lamb Park at Tule Springs, Red Rock Canyon NCA, Desert NWR, Las Vegas Valley SRMA, and Southern Nevada ERMA are within approximately 3 miles from the TUSK Transmission Alternative B and the Proposed Action. Impacts from the TUSK Transmission Alternative B to these SDAs would be the same as the Proposed Action.

#### **3.11.4.6 Direct and Indirect Impacts from Beatty Transmission Line Route Group**

##### **Construction, Operations and Maintenance, and Decommissioning**

The Timber Mountain Caldera ACEC is located within approximately four miles of the Proposed Action and Beatty Transmission Alternatives A, G, K, and L. Beatty Transmission Alternative C would be located approximately 1.5 miles from the Timber Mountain Caldera ACEC. There would be no change in primary use, use patterns, or functions at the Timber Mountain Caldera ACEC from the Beatty Transmission Alternatives. The Proposed Action and the Beatty Action Alternatives would not alter the management of this ACEC.

All of the Beatty Transmission Alternatives cross through the Bullfrog-Beatty ERMA east of US 95 and would have similar impacts from the construction, O&M, and decommissioning of the GLWP. Impacts from the temporary and permanent ROW areas for each of the Action Alternatives would be less than one percent of the ERMA. The Beatty Transmission Alternatives G and K would cross the existing Bullfrog Historical Mining District Loop, which is approximately a 43-mile four-wheel drive recreational route that loops through the Bullfrog Hills and Bare Mountain in two locations. Approximately 5.3 miles of the 43-mile four-wheel drive route would be used and require improvements for access to all the Beatty Transmission Alternatives. Installation of the new transmission line structures would also temporarily disturb these land uses. During construction the improved segment of this trail could conflict with user demand and potentially increase user conflicts. The improved access roads may increase the potential for unauthorized OHV use and illegal dumping. This would result in an increased chance for user-created route proliferation. Although recreation may not be the primary management objective for the Bullfrog-Beatty ERMA, the area still requires management consideration to address recreational use and demand. Impacts to the Bullfrog-Beatty ERMA from the Beatty Transmission Alternatives would not alter or require new management prescriptions and objectives for this ERMA.

Table 3-70 identifies the inventoried LWC unit (NV-050-363) that would be intersected by the Beatty Transmission Alternatives A, C, G, K, and L and the Proposed Action. It shows how much of the unit would be impacted and left below the 5,000-acre threshold. Beatty Transmission Alternatives G and K would have the least impact on the inventoried LWC unit—approximately 18.9 acres each (less than one percent)—

compared to the other three Action Alternatives. Beatty Transmission Alternatives A and C and the Proposed Action would have the same impact to inventoried LWC Unit NV-050-363 and would result in approximately 2,829.7 acres (21 percent) that would be eliminated from the BLM’s TFO LWC inventory.

**Table 3-71. Estimated Acres of Inventoried LWC Units Crossed by the Beatty and Carson River Transmission Alternatives**

<b>Transmission Alternative</b>	<b>Inventoried LWC Unit Number</b>	<b>Total Inventoried LWC Unit Area (acres)</b>	<b>Direct Impact<sup>a</sup> (acres)</b>	<b>Indirect Impact<sup>b</sup> (acres)</b>	<b>Total Area Removed from Inventoried LWC Unit (acres)</b>
Beatty Transmission Alternative A	NV-050-363	13,234.1	96.9	2,732.8	2,829.7
Beatty Transmission Alternative C	NV-050-363	13,234.1	96.9	2,732.8	2,829.7
Beatty Transmission Alternative G	NV-050-363	13,234.1	5.6	13.3	18.9
Beatty Transmission Alternative K	NV-050-363	13,234.1	5.6	13.3	18.9
Beatty Transmission Alternative L	NV-050-363	13,234.1	104.7	3,701.8	3,806.5
Beatty Transmission Alternative Proposed Action	NV-050-363	13,234.1	96.9	2,732.8	2,829.7
Carson River Transmission Alternative A	NV-030-211A	5,470.8	163.5	5,307.3	5,470.8
Carson River Transmission Alternative C	NV-030-210A	5,699.7	51.6	5,648.1	5,699.7
Carson River Transmission Alternative C	NV-030-517A	36,645.3	462.6	961.4	1,424.0
Carson River Transmission Alternative C	NV-030-521	11,165.9	32.9	24.9	57.8
Carson River Transmission Alternative C	NV-030-522	9,446.7	245.9	2,088.2	2,334.2
<b>Subtotal for Carson River Transmission Alternative C</b>	-	62,957.6	793.0	8,722.7	9,515.7
Carson River – Proposed Action	NV-030-210A	5,699.7	69.9	5,629.8	5,699.7
Carson River – Proposed Action	NV-030-211A	5,470.8	163.5	5,307.3	5,470.8
<b>Subtotal for Carson River – Proposed Action</b>	-	11,170.6	233.5	10,937.1	11,170.6

*Table Acronym(s):* LWC – Lands with Wilderness Characteristics

*Table Note(s):* <sup>a</sup>Direct impacts reflect the Action Alternative permanent ROW area within the inventoried LWC unit.;

<sup>b</sup>Indirect impacts to inventoried LWC units would occur when the Action Alternatives would subdivide an inventoried LWC unit, creating one or more sub-units that are less than 5,000 acres.

#### **3.11.4.7 Direct and Indirect Impacts from Scotty's Junction Transmission Line Route Group**

##### **Construction, Operations and Maintenance, and Decommissioning**

Scotty's Junction Transmission Alternative A would come within approximately 3.2 miles of the Grapevine Mountain WSA and would be visible from the WSA. From this middleground (MG) (three to five miles) distance, this transmission alternative would not be visually discernible to the casual observer and would not attract attention. The open design of the guyed lattice structure would blend with the background of varied terrain of the Pahute Mesa area that would lie to the east of Scotty's Junction Transmission Alternative A. In addition, there would be no change in primary use, use patterns, or wilderness characteristics at the Grapevine Mountain WSA as a result of the implementation of Scotty's Junction Transmission Alternative A. Scotty's Junction Transmission Alternative B and the Proposed Action would be greater than five miles from any SDA and would also not impact any inventoried LWC unit in the TFO.

#### **3.11.4.8 Direct and Indirect Impacts from Mason Valley WMA Transmission Line Route Group**

##### **Construction, Operations and Maintenance, and Decommissioning**

Mason Valley WMA Transmission Alternative A would span (no ground disturbance) approximately 1,140 feet over the Mason Valley WMA prior to connecting with the Fort Churchill Substation. A 200-foot permanent ROW area would be required within the WMA. This alternative may result in direct impacts to the WMA during construction from the removal or trampling of vegetation for the maintenance road. Once the vegetation is reestablished following construction, existing vegetation would not be impacted by the transmission line because the low vegetation in this area of the permanent ROW would not be considered incompatible. Visual impacts created by Mason Valley WMA Transmission Alternative A would not notably change as existing transmission lines and a railroad corridor already impact landscape character. This alternative would create a short-term change in the primary use of the WMA but would generally be in conformance with the WMA's managing agency policies. The Proposed Action would require the greater permanent ROW area (approximately 82.2 acres) compared to the Mason Valley WMA Transmission Alternative A (approximately 5.0 acres). The Proposed Action would potentially have up to 12 structures within the WMA while Mason Valley WMA Transmission Alternative A would have one structure within the WMA.

The Mason Valley WMA Transmission Alternative A and the Proposed Action would not impact any inventoried LWC units in the BLM CCDO.

#### **3.11.4.9 Direct and Indirect Impacts from Carson River Transmission Line Route Group**

##### **Construction, Operations and Maintenance, and Decommissioning**

There would be no change in primary use, use patterns, or functions at Fort Churchill State Historic Park because of the Carson River Transmission Alternatives. The Carson River Transmission Alternative A 345-kV Fort Churchill to Comstock Meadows #2 transmission line would be approximately 3.4 miles from the western boundary of Fort Churchill State Historic Park and would not be visible from the Visitor Center. The Proposed Action would be approximately 1.0 mile from the park's western boundary and approximately 3.4 miles from the Visitor Center. The Carson River Transmission Alternative C 345-kV Fort Churchill to Comstock Meadows #2 transmission line would be approximately 150 feet from the western boundary of Fort Churchill State Historic Park, approximately 1.6 miles from the group use area, and approximately 2.4 miles from the Visitor Center. Depending on the location within the SVP, the Carson River Transmission Alternatives A and C and the Proposed Action would range from the landscape

appearing intact and not attracting attention to the landscape being noticeably altered and beginning to attract attention. The magnitude of the changes in views from within the Fort Churchill State Historic Park of the Carson River Transmission Alternatives would be dependent on distance from the park visitor to the transmission lines and the visibility conditions (time of day, season, and presence or absence of vegetation and terrain backdrop).

All of the Carson River Transmission Alternatives would cross through inventoried LWC units in the CCDO. The Carson River Transmission Alternative A would cross one inventoried LWC unit (NV-030-211A) (refer to Table 3-70). This alternative would impact approximately 5,470.8 acres and result in the loss of the inventoried LWC unit (NV-030-211A). The Carson River Transmission Alternative C would intersect four inventoried LWC units (NV-030-210A, NV-030-517A, NV-030-521, and NV-030-522) (refer to Table 3-70). The Proposed Action would intersect with the inventoried LWC units NV-030-210A and NV-030-211A (refer to Table 3-70). Carson River Transmission Alternative C would impact approximately 9,515.7 acres of the inventoried LWC units that it would cross. It would also result in the loss of the inventoried LWC unit NV-030-210A because it would reduce the unit below the 5,000-acre threshold. The Proposed Action would impact approximately 11,170 acres of the two inventoried LWC units (NV-030-210A and NV-030-211A) it would cross and would result in the elimination of both of the inventoried LWC units from the BLM CCDO's LWC inventory.

#### **3.11.4.10 Direct and Indirect Impacts from Amargosa and Esmeralda Substation Groups and Amargosa Microwave Group**

##### **Construction, Operations and Maintenance, and Decommissioning**

There would be no impacts from construction, O&M, or decommissioning on SDAs including inventoried LWC units associated with the Esmeralda Substation Alternatives because there are no SDAs near these alternatives. The AS-1 and AS-2 (Proposed Action) would be approximately 1.0 mile and approximately 2.6 miles, respectively, from Big Dune SRMA and Big Dune ACEC. Neither of the Amargosa Substation Alternatives would impact the recreational use patterns or management of these two SDAs. Impacts from the Amargosa Substation Alternatives to the two dune beetle species found in the Big Dune ACEC are described in Section 3.11.3 Affected Environment.

The Ash Meadows ACEC and Ash Meadows NWR are located east of SR 373, approximately 1.5 miles from AM-1 (Proposed Action) and approximately 1.7 miles from AM-2. The AM Alternatives are located on opposite sides of SR 373, both adjacent to existing developments. The AM-2 is north of the Longstreet Hotel and Casino and within the Southern Nevada ERMA. The AM-1 (Proposed Action) is adjacent to the ERMA boundary on previously disturbed land. Neither Amargosa Microwave Alternatives would alter, conflict with, or require new management prescriptions and objectives for these SDAs.

#### **3.11.4.11 Impacts from Anti-Perching/Nesting Mitigation Measure**

Refer to Additional Measures to Avoid and/or Minimize Impacts for Bi-State sage-grouse and Mojave desert tortoise in Section 3.1.4.2 for detailed information regarding this mitigation measure. The anti-perching/nesting mitigation would be implemented in Mojave desert tortoise recovery units and near the Wassuk Range northwest of Walker Lake. Views of the 525-kV H-frame structures and the Proposed Action (guyed lattice structures) visible within approximately 0.5 miles of SDAs would attract attention and may be visually prominent, depending on the terrain. Due to the scale and form of the structures, the visual setting may appear altered when the structures are in close proximity (less than 0.5 miles), even

with the backdrop of the adjacent mountains. Compared to the guyed lattice structures, the characteristic landscapes would be altered where the 525-kV H-frame structures would be between 0.5 miles and 3 miles from the SDAs. The 525-kV H-frame structures would attract more attention in the landscape compared to the guyed lattice structures because they would not blend as well into the landscape between 0.5 and 3 miles from the SDAs and there would be a greater number of taller structures.

### **3.12 National Historic Trails and Trails Under Study for Congressional Designation**

National Historic Trails (NHTs) are congressionally designated prehistoric pathways and routes of exploration, migration, struggle, trade, and military action that offer the opportunity to retrace past events through historic sites, points of interests, trail segments, and waterways (NPS 2022). Congressionally designated NHTs within the GLWP area include portions of the Central Overland Emigrant Route, California, Pony Express, and Old Spanish NHTs. The Central Overland Emigrant Route – Simpson Route #35E and Bidwell-Bartleson Route #39 were found feasible and suitable, were recommended for inclusion in the National Trails System as part of the California NHT and are awaiting Congressional review (NPS 2019b). In 1992, Congress authorized the California and Pony Express NHTs to commemorate significant routes of travel (NPS 1998). In 2002, Congress authorized the Old Spanish NHT (BLM and NPS 2017). The NHT Inventory and Assessment Report (Appendix M) provides the trails’ relevant nature and purposes, significance statements (i.e., why each trail’s resources and values within the GLWP area merit NHT designation), periods of significance, and their relationship to the four landscape elements. The four landscape elements evaluated as part of this assessment report are scenic, cultural and historic, recreational and travel management, and natural. This section describes the baseline conditions of each NHT in its existing setting and degree of potential change as a result the construction, O&M, and decommissioning of the GLWP on these portions of the California, Pony Express, and Old Spanish NHTs.

Portions of NHTs considered “high potential route segments” and “high potential historic sites” (National Trails System Act [NTSA] Sec. 12) are given special attention as these represent:

- 1) Segments of a trail which would afford high-quality recreation experience in a portion of the route having greater than average scenic values or affording an opportunity to vicariously share the experience of the original users of a historic route.
- 2) Historic sites related to the route, or sites in close proximity thereto, which provide opportunity to interpret the historic significance of the trail during the period of its major use.

The California NHT Carson Route (along US 50) and Old Spanish NHT California Crossing are considered high potential route segments. Fort Churchill is a high potential historic site and National Historic Landmark associated with the California and Pony Express NHTs (NPS 1998). The BLM has coordinated with NPS, the Oregon California Trail Association, the National Pony Express Association, and the Old Spanish Trail Association.

#### **3.12.1 Issues Identified for Analysis**

- How would the GLWP affect the NHTs (Old Spanish, California, Pony Express, and Central Overland Emigrant Route)?
- What would the impacts be to high priority route segments and high potential historic sites of these NHTs?



### **3.12.2 Analysis Area and Methodology**

#### **Analysis Area**

The NHT analysis area is defined as the five-mile radius from the transmission centerline for all Action Alternatives and is approximately 4,315 square miles (2,761,704 acres). Figure 3-27 shows the locations of the Proposed Action and Congressionally designated NHTs.

#### **Methodology**

In compliance with the BLM Manual 6280, Management of National Scenic and Historic Trails Under Study or Recommended as Suitable for Congressional Designation, this section identifies the resources, qualities, values, associated settings, and primary uses that support the nature and purpose of affected NHTs and impacts. Additional information can be found within the GLWP NHT Inventory and Assessment Report (Appendix M). The BLM established NHT Inventory Analysis Units (IAUs) for two groups of NHT routes that the GLWP would directly cross: the California and Pony Express NHT Carson Route and California NHT Walker River Route. The IAUs were delineated to generally encompass a five-mile viewshed from those NHT segments that occur within the GLWP area. The IAUs include the three-mile VAPE, which corresponds to the FG distance zone, and the DAPE, which encompasses the temporary ROW area plus an approximately 98.4-foot buffer (Section 3.6 Cultural Resources). A National Trail inventory and assessment was not prepared nor were IAUs developed for the Old Spanish NHT or other portions of the California NHT because GLWP-related landscape character changes would not be visually discernible or attract attention within the existing landscape.

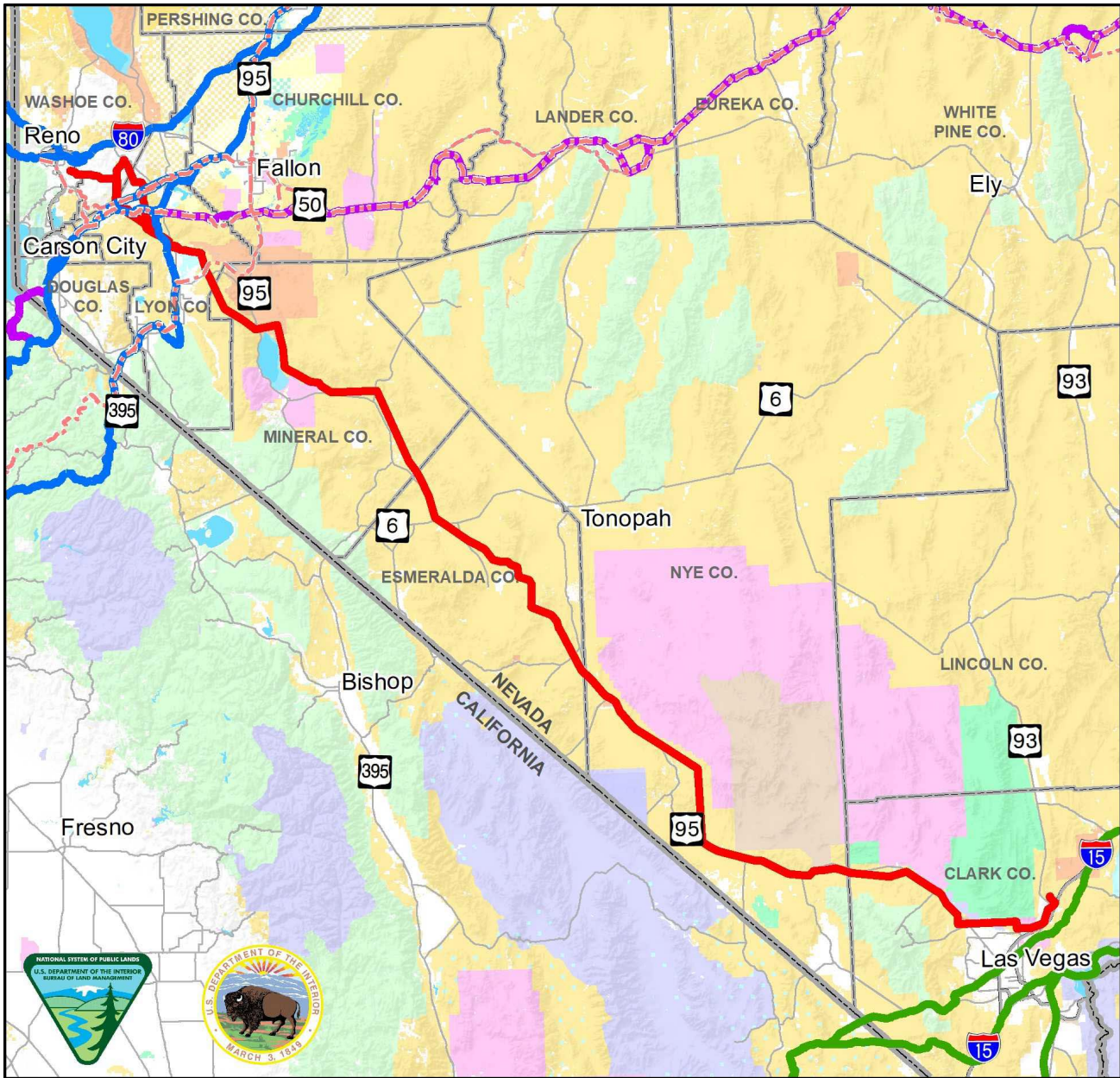
Key observation points (KOPs) within the IAUs were selected to capture the components of the GLWP and the existing features, both natural and built, that would be seen or not seen from the NHTs. Field crews visited the NHT analysis area to observe trail traces, historic properties, recreational viewpoints, and Auto Tour Routes and to analyze the impacts to NHTs. As described in Section 3.6 Cultural Resources, a Class III inventory included federal and state lands but excluded private lands and inaccessible lands (e.g., locked gates, slopes exceeding 30 percent). Undocumented trail traces on private lands were not inventoried for visual effects due to a lack of access. The visibility levels from historic properties were evaluated in Section 3.6 Cultural Resources. Visual effects are considered direct effects (rather than indirect effects) but would not result in physical disturbance to historic properties.

### **3.12.3 Affected Environment**

This section summarizes each NHT or Trails Recommended as Suitable for Congressional Designation's resources, qualities, values, associated settings, or primary use or uses associated with scenic, cultural and historic, recreational and travel management, and natural elements to document the baseline conditions of the NHT analysis area. These are described in detail in the GLWP NHT Inventory and Assessment Report (Appendix M).

#### **The California and Pony Express NHTs and Feasible and Suitable Routes**

Currently, the California and Pony Express NHTs provide recreational opportunities for those interested in the history of the NHTs. Recreational opportunities and primary uses include following the trails by walking, horseback riding, visiting trail sites and related features, and driving along auto tour routes (NPS 1998).



**Legend**

- |  |                              |
|--|------------------------------|
| Proposed Action Transmission Line          | Department of Defense        |
| California National Historic Trail         | US Fish and Wildlife Service |
| Old Spanish National Historic Trail        | US Forest Service            |
| Pony Express National Historic Trail       | Indian Reservation           |
| Feasible and Suitable Segments Under Study | National Park Service        |
| Bureau of Land Management                  | State                        |
| Department of Energy                       | Private                      |
| Bureau of Reclamation                      | Water                        |

Scale: 1:3,000,000  
  
 0 10 20 30 40 mi

No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure 3-27. Congressionally Designated NHTs**

Affected NHT routes occur in three major groups from north to south:

- 1) California NHT's Truckee Route, Beckwourth Trail, and I-80 Auto Tour Route that generally follows the I-80 corridor north of Reno
- 2) California NHT's Carson Route, Carson Wet/Dry Route, and Simpson Route #35E that generally follow the US 50 and the Carson River Route, Simpson Route #35E, and Pony Express NHT that parallel the Carson River
- 3) California NHT Walker River segment that follows the Walker River north-south and Bidwell-Bartleson Route #39

Segments paralleling I-80 occur in a multimodal transportation corridor and through the Reno metropolitan area urban environment with a variety of modern-built commercial, industrial, and residential features and activities. Within the Reno metropolitan area, the Truckee Route, Beckwourth Trail, and I-80 Auto Tour Route do not possess aspects of integrity. Because the Truckee segments lack integrity, an IAU was not delineated.

The Carson River IAU extends from the Flowery Range south to the Carson River, the Fort Churchill State Historic Park, and the Pine Nut Mountains. This IAU contains the US 50 Auto Tour Route from Silver Springs to approximately Dayton and encompasses built features and urban development activities throughout the unit. Within the Carson River IAU, the California NHT segments following the US 50 Auto Tour Route (the Carson Route, the Carson Dry Route, and the Carson Wet Route) are classified as high potential route segments in NPS- and BLM-provided GIS data. One Simpson Route #35E segment also parallels US 50. Three nearly parallel segments of the California and Pony Express NHTs and the Simpson Route #35E follow the Carson River from Fort Churchill State Historic Park west to approximately Dayton before joining US 50. The California and Pony Express NHT segments following the Carson River between Dayton State Park and Buckland Station are not classified as high potential segments. Although not classified as high potential segments, these routes possess attributes representative of high potential segments, such as high-quality recreation and interpretive opportunities, ease of access, and the dominance of the river corridor and cottonwoods along the Carson River Route, even though industrial uses at the Nevada Automotive Test Center are present.

The Walker River IAU was delineated with the Carson River as the northern boundary and contains the Singatse Range, the Pine Nut Mountains, the Desert Mountains, the Wassuk Mountains, and the southwestern portion of the Mason Valley. This IAU includes built features and rural and agricultural development activities associated with the US 95/95A corridors and Mason Valley. This IAU encompasses the California NHT Walker River – Sonora Route segment which parallels the Adrian Valley to the Walker River. The Bidwell-Bartleson Route #39 generally follows US 95 east to west in the southern portion of the Walker River IAU.

### **The Old Spanish National Historic Trail**

The Congressional legislation authorizing the Old Spanish NHT identified four major routes (Armijo Route, Northern Route, North Branch, and Mojave Road) that include approximately 2,706 miles of trail extending from Santa Fe, New Mexico, to Los Angeles, California. The Old Spanish NHT nature and purpose can be summarized as a trail that crosses rugged terrain of the American West characterized by extremes in elevation from the highs of the Colorado Rockies to the lows of the Mojave Desert.

The Northern Route of the Old Spanish NHT would be the only route within the NHT analysis area. Potentially visible portions of Northern Route segments fall within North Las Vegas, the BLM Nellis Dunes OHV Recreation Area, Nellis Air Force Base (AFB), and urban portions of Clark County. The area that the Northern Route crosses includes built features and urban development activities throughout the I-15 corridor. Because the Northern Route segments lack integrity and trail traces have not been located, an IAU for the Northern Segment of the Old Spanish NHT was not delineated. In addition, the California Crossing, an Old Spanish NHT high potential segment was not analyzed because the Dry Lake Range would obstruct views of the GLWP.

### **3.12.4 Environmental Consequences**

Impacts to the California, Pony Express, and Old Spanish NHTs are proportional to their distances to the GLWP components. Direct impacts to the NHTs would occur where the trail is within the 600-foot temporary ROW. Indirect impacts would occur outside the temporary ROW area but within the seen area of the 5-mile viewshed from the NHTs.

#### **3.12.4.1 Direct and Indirect Impacts from No Action Alternative**

It is anticipated that under the No Action Alternative, the current uses and trends for the resources would continue to occur. There would be no impacts to NHTs or to Trails Recommended as Suitable for Congressional Designation attributed to the construction, O&M, and decommissioning of the GLWP under the No Action Alternative.

#### **3.12.4.2 Direct and Indirect Impacts Common to all Action Alternatives**

##### **Construction**

The four affected NHT segments would be impacted by the Action Alternatives construction-related activities to varying degrees. The Action Alternatives would cross the California and Pony Express NHTs and Central Overland Emigrant Route in the Carson River and Walker River IAUs, but would not cross the California NHT segments along I-80 and the Old Spanish Trail. Those NHT segments crossed by the Action Alternatives would experience temporary use restrictions when the lines are being strung because of public safety considerations. The NHT segments with FG views of the Action Alternatives would be impacted by the generation of fugitive dust; movement of equipment and vehicles in and out of the temporary ROW area; and the presence of construction vehicles and equipment, transmission line stringing, and material stockpiles during construction. These impacts would affect recreation settings, experiences, and activities during construction of the Action Alternatives. The timing of construction may impact the annual Pony Express Re-Ride. The Proponent would coordinate with the BLM to minimize any impacts to this event (Appendix C. EMM NHT-3).

Construction activities that modify the slope of the natural terrain, compact soils, and remove vegetation could cause increased erosion of NHT traces and archaeological deposits and modify the appearance of the existing landforms. Any unsurveyed, unevaluated trail traces within the temporary ROW area may also have the potential to be physically disturbed during construction. Fugitive dust covering vegetation and the potential spread of invasive species/noxious weeds during construction could disturb native vegetation.

The construction-related impacts from the Action Alternatives would be reduced with the implementation of EMMs (Appendix C. EMMs BIO-16, BIO-35, CON-7, CON-13, CULT-4, CULT-6, NHT-1 through NHT-3, OPS-1, OPS-3, REC-20, and VIS-1 through VIS-14) and the Historic Properties Treatment Plan (Appendix K).

**Operations and Maintenance**

During O&M, all access and maintenance roads would be maintained and publicly accessible, unless otherwise specified by the landowner or appropriate land management agency. New roads and improved existing roads in the immediate vicinity of NHT traces may contribute to unauthorized recreational travel and route proliferation. Looting of archaeological sites due to the increase of accessibility from access roads may occur during O&M. Annual inspections of the GLWP components would be conducted by helicopter, all-terrain vehicles, or line trucks. Depending on the existing conditions and setting and distance from the NHT, these types of O&M activities may create intermittent noise, dust, and movement vehicles and equipment which would impact the NHT landscape elements. The presence of the GLWP components would reduce the historic integrity of less-developed settings.

**Decommissioning**

Impacts during decommissioning would be similar to those described for construction, though to a lesser degree. After reclamation, disturbed areas would be restored to pre-construction conditions, to the extent feasible. The impacts to NHTs would no longer occur after the removal of the GLWP components.

**3.12.4.3 Direct and Indirect Impacts from Proposed Action**

**Truckee Route, Beckwourth Trail, and I-80 Auto Tour Route Segments (California NHT)**

**Construction, Operations and Maintenance, and Decommissioning**

An IAU was not delineated around the Truckee segments because only approximately 2.8 miles of the I-80 Auto Tour Route and the parallel Truckee Route east of Reno would have intermittent views of approximately 0.5 miles of the 345-kV Fort Churchill-Mira Loma transmission line and Comstock Meadows Substation at the closest distance of approximately 4.8 miles. The visible portion of the Proposed Action from these NHT routes would occur in the MG as it enters the existing Mira Loma Substation and would be seen in context with existing urban, suburban, industrial, and other electrical facility uses. Refer to Table 3-71 for summary of the impacts on the California NHT I-80 segments by the Proposed Action. Views from the Truckee Route, Beckwourth Trail, and I-80 Auto Tour Route Segments resulting from Proposed Action’s construction, O&M, and decommissioning activities would result in the same impacts as the impacts common to all Action Alternatives.

**Table 3-72. Proposed Action Impacts to I-80 NHT Segments within the NHT Analysis Area**

<b>NHT-Designated Resources</b>	<b>Length of NHT with Views of Proposed Action (est. miles)</b>	<b>Proposed Action Crossings</b>	<b>Scenic Impacts</b>	<b>Cultural and Historic Impacts</b>	<b>Recreational Impacts</b>	<b>Natural Impacts</b>
CALI: Truckee Route	1.9	None	Minor <sup>a</sup>	None	None	None
CALI: Beckwourth Trail	0.9	None	Minor	None	None	None
I-80 Auto Tour Route and Waysides	N/A	None	Minor	None	Minor <sup>b</sup>	None
<b>Total</b>	<b>2.8</b>	-	-	-	-	-

*Table Acronym(s):* CALI – California National Historic Trail; I-80 – Interstate 80; Est. – Estimated; N/A – Not Applicable; NHT – National Historic Trail  
*Table Note(s):* <sup>a</sup>The magnitude of the contrast produced by the Action Alternative would be low compared to other features and patterns in the viewshed per contrast ratings. The components would introduce elements/patterns common in the landscape that would be visually subordinate. Views of the Action Alternative would be relatively short in duration.

<sup>b</sup>National Trail recreation and travel management opportunities and settings would be minimally modified by the Action Alternative. Contributing qualities would continue to define the character of the trail.

**Carson River IAU Segments (California and Pony Express NHTs)**

**Construction, Operations and Maintenance, and Decommissioning**

The Proposed Action would add three 345-kV steel H-frame transmission lines to the landscape where one wood H-frame transmission line currently exists. In total, the NHTs would be crossed by the proposed 345-kV transmission lines in 12 locations (Table 3-72 and Figure 3-28). The Proposed Action would cross the California and Pony Express NHTs on private land which has not been subject to a Class III cultural resources survey. Refer to Table 3-72 for summary of the impacts on the Carson River IAU by the Proposed Action. Implementation of EMMs (Appendix C. EMMs AIR-9, BIO-16, BIO-35, CON-7, CON-13, CULT-2, CULT-4, CULT-6, NHT-1 through NHT-3, OPS-1, OPS-3, REC-20, and VIS-1 through VIS-14) would minimize impacts to NHT features.

**Table 3-73. Proposed Action Impacts to Carson River IAU Segments within the NHT Analysis Area**

<b>NHT-Designated Resources</b>	<b>Length of NHT with Views of Proposed Action (est. miles)</b>	<b>Proposed Action Crossings<sup>a</sup></b>	<b>Scenic Impacts</b>	<b>Cultural and Historic Impacts</b>	<b>Recreational Impacts</b>	<b>Natural Impacts</b>
Fort Churchill State Historic Park (High Potential Historic Site)	N/A	1 Existing Access Road (Fort Churchill Rd)	Minor <sup>b</sup>	Minor	None	None
Buckland Station	N/A	1 Existing Access Road (US 95)	None	None	None	None
CALI: Carson Route (US 50)	7.9	6 Existing Access Roads 3 Existing Access Roads Requiring Improvements 1 New Access Road 2 Transmission Lines	Minor	None	Minor <sup>c</sup>	Minor <sup>d</sup>
CALI: Carson Route – Dry Route (US 50)	5.0	3 Existing Access Roads 1 Existing Access Roads Requiring Improvements 1 Transmission Line	Minor	None	Minor	Minor
CALI: Carson Route – Wet Route (US 50)	3.8	2 Existing Access Roads 1 Existing Road Requiring Improvements 1 Transmission Line	Minor	None	Minor	Minor
CALI: Carson Route} (i.e., Carson River Route)	19.8	14 Existing Access Roads 3 Existing Access Roads Requiring Improvements 3 New Access Road 3 Transmission Lines	Minor	Moderate <sup>e</sup>	Minor	Minor
POEX: Carson Route (i.e., Primary Route)	21.2	8 Existing Access Roads 2 Existing Road Requiring Improvements 2 New Access Roads 3 Transmission Lines	Minor	Moderate	Minor	Minor

**Table 3-72. Proposed Action Impacts to Carson River IAU Segments within the NHT Analysis Area (continued)**

NHT-Designated Resources	Length of NHT with Views of Proposed Action (est. miles)	Proposed Action Crossings <sup>a</sup>	Scenic Impacts	Cultural and Historic Impacts	Recreational Impacts	Natural Impacts
US 50 Auto Tour Route and Waysides	21.3	3 Transmission Lines	Minor	None	Minor	Minor
Central Overland Emigrant Route – Simpson Route #35E	36.0	27 Existing Access Roads 11 Existing Road Requiring Improvements 3 New Access Roads 7 Transmission Lines	Minor	Moderate	Minor	Minor
<b>Total Carson River IAU Miles</b>	<b>99.7<sup>f</sup></b>					

*Table Acronym(s):* CALI – California National Historic Trail; Est. – Estimated; IAU – Inventory Analysis Unit; N/A – Not Applicable; NHT – National Historic Trail; POEX – Pony Express National Historic Trail; US – United States.

*Table Note(s):* <sup>a</sup>Trail routes overlap, therefore transmission crossings are not additive.

<sup>b</sup>The magnitude of the contrast produced by the Action Alternative would be low compared to other features and patterns in the viewshed per contrast ratings. The components would introduce elements/patterns common in the landscape that would be visually subordinate. Views of the Action Alternative would be relatively short in duration.

<sup>c</sup>National Trail recreation and travel management opportunities and settings would be minimally modified by the Action Alternative. Contributing qualities would continue to define the character of the trail.

<sup>d</sup>Natural resources, including any key contributing qualities and characteristics, would have subtle effects from the Action Alternative. Contributing qualities would continue to define the character of the trail.

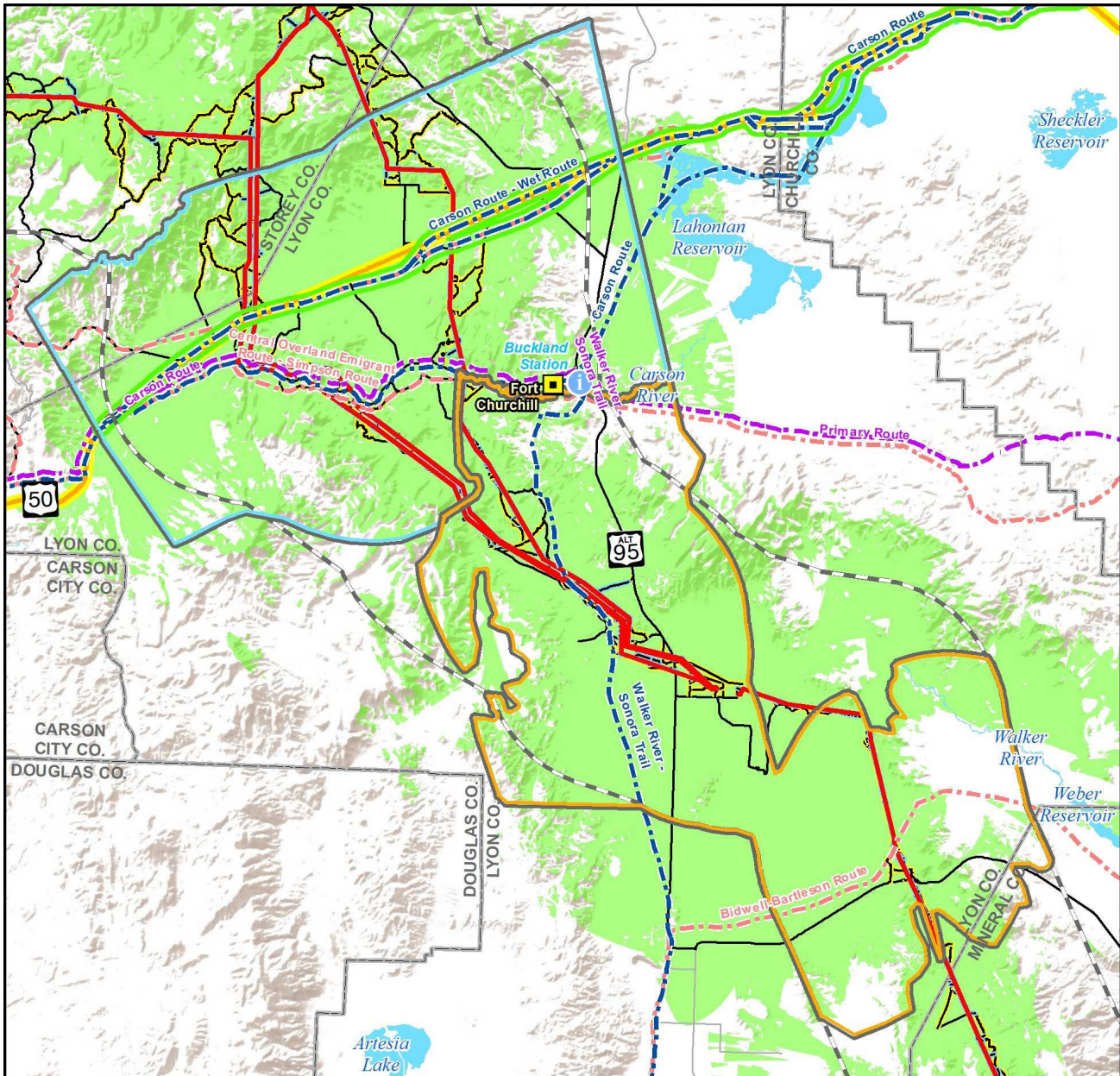
<sup>e</sup>The magnitude of contrast produced by the Action Alternative would attract attention and the GLWP components would be visually prominent in the views from NHT components per contrast ratings. Views of the Action Alternative would be notable in duration or extent. The inherent quality of interesting, but not outstanding, landscapes would be modified through the introduction of elements not common in the historical landscape, as seen from NHT-associated historic properties and/or interpretive areas.

<sup>f</sup>All routes overlap each other to some degree. For example, the US 50 Auto Tour Route overlaps 100% of the CALI Carson Route, Dry Route, and Wet Route. A total is provided only for alternative comparison.

Within the Carson River IAU along the California NHT Carson River Route, which includes the Pony Express NHT and Central Overland Emigrant Route – Simpson Route #35E, the historic and cultural setting is relatively intact. Development has not yet influenced much of the area though some portions of the corridor are impacted. Existing features that are incompatible with the historic setting within the Carson River IAU include transportation, utility corridors, low-level military flight paths, and industrial uses, particularly the Nevada Automotive Test Center, associated with the communities of Dayton, Stagecoach, and Silver Springs.

For the Carson Route segment of the California NHT located adjacent to US 50, views in the FG of the three 345-kV transmission lines would be equally skylined and backdropped against a variable terrain and seen in both continuous stretches and intermittently. The portions of the Proposed Action visible in the FG from the Carson Route and the Simpson Route #35E segments would not attract attention within the visual setting because of the existing development associated with Dayton, Stagecoach, and Silver Springs. In the MG from the Carson Route and the Simpson Route #35E segments, the Proposed Action would not be seen.

The three Proposed Action 345-kV transmission lines would cross the Carson River segment of the California NHT, the Pony Express NHT and the Simpson Route #35E in a portion of the Carson River Valley with rich history and a historic setting that remains relatively intact (Figure 3-29). Each of these landscape elements and the resulting opportunities for vicarious experiences, such as the Pony Express Annual Re-Ride, would be impacted to varying degrees by the addition of the three 345-kV transmission lines. Effects would be most pronounced for approximately 5.5 miles where two of the 345-kV transmission lines



**Legend**

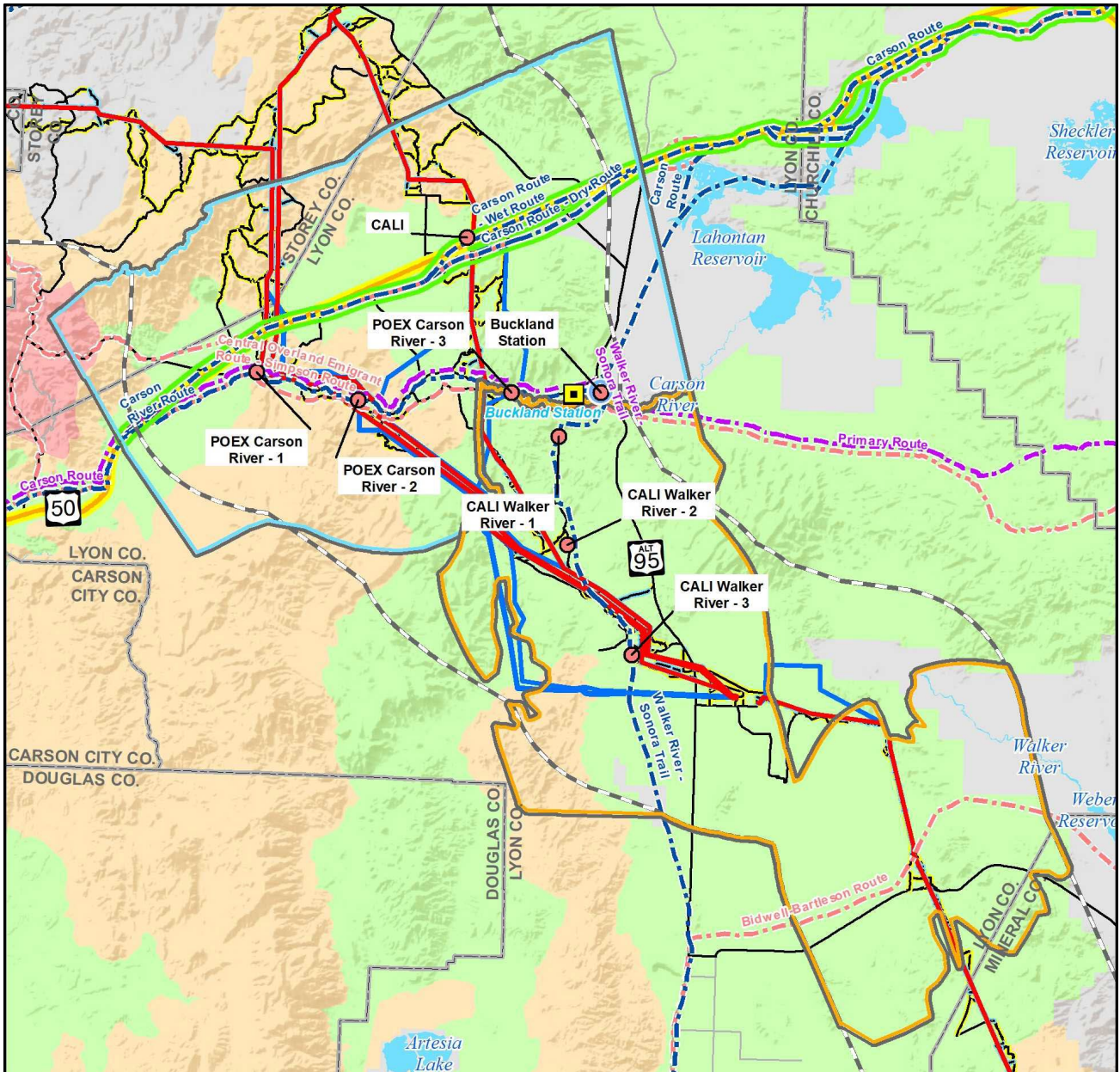
- |  |  |
|--|--|
| High Potential Site                        | Existing Access Road                       |
| National Historic Trail Point of Interest  | Existing Access Road Requiring Improvement |
| NHT California National Historic Trail     | New Access Road                            |
| NHT Pony Express National Historic Trail   | Proposed Action Transmission Line          |
| NHT California High Potential Segment      | Viewshed of Proposed Action                |
| NHT Auto Tour Route                        | Transmission Line Route                    |
| Feasible and Suitable Segments Under Study | NHT Analysis Area                          |
| Carson River NHT Inventory Analysis Unit   |  |
| Walker River NHT Inventory Analysis Unit   |  |

Scale: 1:400,000

No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.



**Figure 3-28. Viewshed of the Proposed Action and Affected NHTs**






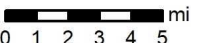
**Legend**

- Key Observation Point (KOP)
  - High Potential Site
  - i National Historic Trail Point of Interest
  - NHT California National Historic Trail
  - NHT Pony Express National Historic Trail
  - NHT California High Potential Segment
  - NHT Auto Tour Route
  - Feasible and Suitable Segments Under Study
  - Carson River NHT Inventory Analysis Unit
  - Walker River NHT Inventory Analysis Unit
  - Existing Access Road
  - Existing Access Road Requiring Improvement
  - New Access Road
  - Proposed Action Transmission Line
  - Alternative Transmission Line
  - NHT Analysis Area
- Scenic Quality Rating Code**
- A - 18.5 or More Score for Scenic Quality
  - B - 11.5 to 18 Total Score for Scenic Quality
  - C - 11 or Less Total Score for Scenic Quality
  - N - Not Inventoried



Scale: 1:400,000



No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure 3-29. Carson River NHT IAU and Walker River NHT IAU – KOPs and Scenic Quality Rating Units**

would be generally parallel to, and cross over, the Carson River. The FG and MG views from the trails of the 345-kV transmission lines would be more intermittent than continuous because of the mountainous terrain, density of the cottonwoods (both in summer and winter) and other riparian vegetation associated with the river corridor. The three 345-kV transmission lines would attract attention when they would pass immediately overhead. The H-frame transmission lines would be visually subordinate within the visual setting after passing over the trails because of the dense riparian vegetation in the river corridor and the adjacent mountainous terrain which backdrops the views from the California NHT, the Pony Express NHT and the Simpson Route #35E. North and south of the Carson River, the three 345-kV transmission lines would begin to attract attention when viewed in the FG from the Carson River segment of the California NHT, the Pony Express NHT, and Simpson Route #35.

**Walker River IAU Segments (California and Pony Express NHTs)**

**Construction, Operations and Maintenance, and Decommissioning**

The historical integrity of the Walker River IAU’s setting is measured by the presence and condition of physical characteristics that remain from the period of historical significance such as visible trail traces, ranching and livestock operations, water features and riparian areas throughout the Adrian and Mason valleys, and views of undeveloped portions of the Adrian and Mason valleys. Existing features that are incompatible with the historic setting are the US 95A and railroad transportation corridors, Fort Churchill power generating facility, agricultural fields and related harvesting and irrigation equipment, and the community of Yerington. Portions of the California NHT and the Pony Express NHT corridors within the Walker River IAU provide recreational opportunities, such as cross-country walking or horseback riding on public land. The Walker River – Sonora Route and Bidwell-Bartleson Route are paralleled by well-maintained roads that allow sightseeing. There are no NHT-associated special designations, auto tour routes, associated museums, or interpretive facilities within the IAU but Fort Churchill State Historic Park and Buckland Station are adjacent to the IAU (refer to the Carson River IAU Segments above). The California NHT Walker River – Sonora Route would be crossed by three 345-kV steel H-frame transmission lines in one location where one H-frame transmission line currently exists. The Pony Express would not be crossed by the 345-kV transmission lines in the Walker River IAU. Refer to Figure 3-29 for location of these segment crossings and to Table 3-73 for summary of the impacts on the Walker River IAU by the Proposed Action.

**Table 3-74. Proposed Action Impacts to Walker River IAU Segments within the NHT Analysis Area**

<b>NHT-Designated Resources</b>	<b>Length of NHT with Views of Proposed Action (est. miles)</b>	<b>Number of Proposed Action Crossings</b>	<b>Scenic Impacts</b>	<b>Cultural and Historic Impacts</b>	<b>Recreational Impacts</b>	<b>Natural Impacts</b>
CALI: Walker River – Sonora Route	18.1	6 Existing Access Roads 1 Existing Road Requiring Improvements 3 Transmission Lines	Moderate <sup>a</sup>	Moderate	Minor <sup>b</sup>	Minor <sup>c</sup>
POEX: Primary Route and Carson Route	1.5	1 Existing Access Road	Minor <sup>d</sup>	Moderate	Minor	Minor

**Table 3-73. Proposed Action Impacts to Walker River IAU Segments within the NHT Analysis Area (continued)**

<b>NHT-Designated Resources</b>	<b>Length of NHT with Views of Proposed Action (est. miles)</b>	<b>Number of Proposed Action Crossings</b>	<b>Scenic Impacts</b>	<b>Cultural and Historic Impacts</b>	<b>Recreational Impacts</b>	<b>Natural Impacts</b>
Central Overland Emigrant Route – Simpson Route	6.2	2 Existing Access Roads	Minor	Minor	Minor	Minor
Central Overland Emigrant Route – Bidwell-Bartleson Route #39	11.2	1 Transmission Line 3 Existing Roads Requiring Improvements	Minor	Moderate	Minor	Minor
<b>Total Walker River IAU Est. Miles</b>	<b>36.9<sup>e</sup></b>					

*Table Acronym(s):* CALI – California National Historic Trail; Est. – Estimated; IAU – Inventory Analysis Unit; NHT – National Historic Trail; POEX – Pony Express National Historic Trail

*Table Note(s):* <sup>a</sup>The magnitude of contrast produced by the Action Alternative would attract attention and the components would be visually prominent in the views from NHT components per contrast ratings. Views of the Action Alternative would be notable in duration or extent. The inherent quality of interesting, but not outstanding, landscapes would be modified through the introduction of elements not common in the historical landscape, as seen from NHT-associated historic properties and/or interpretive areas.

<sup>b</sup>National Trail recreation and travel management opportunities and settings would be minimally modified by the Action Alternative. Contributing qualities would continue to define the character of the trail.

<sup>c</sup>Natural resources, including any key contributing qualities and characteristics, would have subtle effects from the Action Alternative. Contributing qualities would continue to define the character of the trail.

<sup>d</sup>The magnitude of the contrast produced by the Action Alternative would be low as compared to other features and patterns in the viewshed per contrast ratings. The GLWP components would introduce elements/patterns common in the landscape that would be visually subordinate. Views of the Action Alternative would be relatively short in duration.

<sup>e</sup>All routes overlap each other to some degree. For example, the US 50 Auto Tour Route overlaps 100% of the CALI Carson Route, Dry Route, and Wet Route – a total is provided only for alternative comparison.

The setting in the northern portion of the Walker River – Sonora Route segment is enclosed by foothills and mountains and views are focused on the incised drainage, which it parallels. The Desert Mountains and Adrian Valley retain integrity of setting and feeling and a recreation setting that would support vicarious experiences. These resources and qualities would be affected by three new transmission line crossings and new and improved access roads. NHT recreationists’ views of the Proposed Action in the FG would be continuous, partially obstructed at times due to the hilly terrain, and predominantly backdropped against the Desert and Pine Nut mountains. In the MG, views of the 345-kV H-frame transmission lines would be more intermittent and obstructed. Effects would be most pronounced for approximately 4.5 miles where the three 345-kV transmission lines would parallel and cross the Walker River – Sonora Route.

The southern portion of the Walker River – Sonora Route segment occurs in an open, flat basin with views of multiple existing transmission lines in all directions. The three new 345-kV transmission lines would be seen in context with an existing wood pole H-frame transmission line. Where the Proposed Action would be within the immediate FG of the NHT, it would noticeably alter the scenic, recreational, and historic experience for approximately 4.9 miles along the trail. The Fort Churchill Substation would be visible in the MG of the Walker River – Sonora Route in context with several existing transmission lines and the existing Fort Churchill Generating Station. However, the Proposed Action would not notably alter the visual setting because of the presence of built features, mixed land uses, and the scale of the landforms in the setting are more prominent than the proposed transmission lines and substation.

The Bidwell-Bartleson Route #39 travels north of the Wassuk Mountains through a representative Great Basin landscape with prominent views of the Walker River Valley and Mason Valley. The Proposed Action transmission line would cross the Bidwell-Bartleson Route #39 route on BLM-administered land parallel to an existing transmission line. Approximately two miles of the Bidwell-Bartleson Route #39 would be affected beginning at the Proposed Action crossing and extending approximately two miles east of the crossing. This portion of the Bidwell-Bartleson Route #39 currently passes through an area that supports integrity of setting and feeling and a desired recreation setting. The Bidwell-Bartleson Route #39 then continues west through the Mason Valley to Yerington where multiple transmission and distribution lines, the Fort Churchill Generating Station, agricultural and rural land uses, and road networks dominate the NHT experience; effects from the Proposed Action would be negligible.

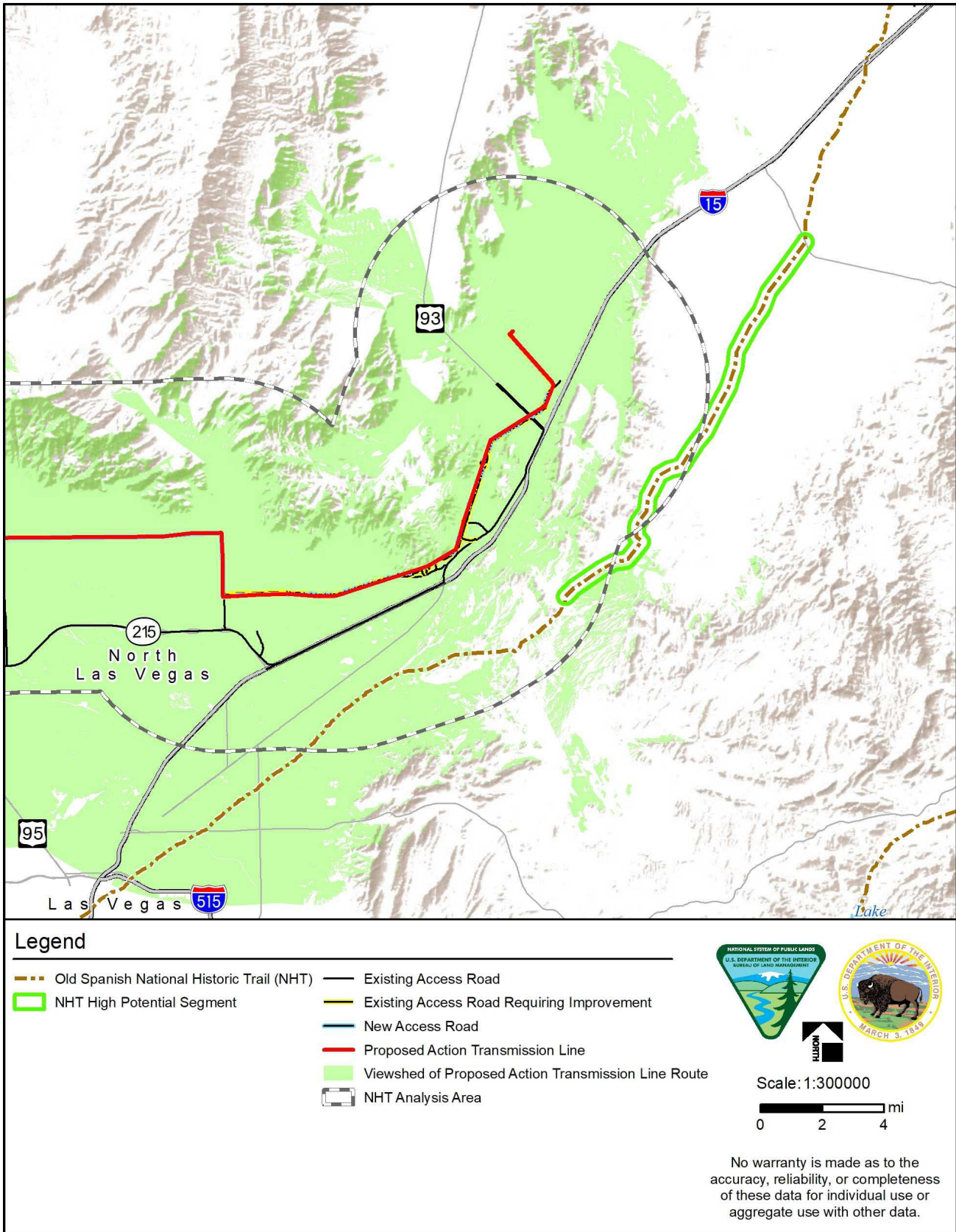
### **Old Spanish Trail NHT Segments**

#### **Construction, Operations and Maintenance, and Decommissioning**

The construction and decommissioning impacts would be the same as described above in impacts common to all Action Alternatives. The Old Spanish NHT's Northern Route would be approximately three miles from the nearest portion of the Proposed Action 525-kV transmission line (Figure 3-30 for a viewshed of the Proposed Action near the Old Spanish NHT). Eastbound (EB) and westbound (WB) recreationists' views of the Proposed Action in the FG and MG from Old Spanish NHT would be predominantly backdropped against mountainous terrain and the guyed lattice and monopole structures would be partially obstructed by other built features in the landscape. Any portion of the Old Spanish NHT within the Proposed Action viewshed would have negligible landscape impacts due to a lack of integrity of trail traces and setting, high concentration of existing transmission lines of a similar scale, Nellis AFB, I-15 and highway traffic, and urbanization from the Las Vegas metropolitan area (Table 3-74).

#### **Conformance of the Proposed Action with the National Trails System Act Section 7(c)**

The BLM's Manual 6280 (BLM 2012b) states that under the NTSA the National Trail Administrator will, in coordination with participating public land managing agencies, avoid activities to the extent practical that will be incompatible or cause substantial interference with the nature and purposes for which NHTs were established. Inconsistent and incompatible activities may include highways, improved roads, energy transmission lines, pipelines, and other disturbing or culturally modifying activities (BLM 2012b). The determination of land uses that would be consistent and compatible and incompatible uses within the NHT corridor varies with the type of landscape and trail experience and the nature and purposes of the trail.



**Figure 3-30. Viewshed of the Proposed Action and the Old Spanish NHT**

**Table 3-75. Proposed Action Impacts to Old Spanish NHT Segments within the NHT Analysis Area**

<b>NHT-Designated Resources</b>	<b>Length of NHT with Views of Proposed Action (est. miles)</b>	<b>Number of Proposed Action Crossings</b>	<b>Scenic Impacts</b>	<b>Cultural and Historic Impacts</b>	<b>Recreational Impacts</b>	<b>Natural Impacts</b>
Old Spanish: Northern Route	6.4	0	Minor <sup>a</sup>	None	None	None

*Table Acronym(s):* Est. – Estimated; NHT – National Historic Trail

*Table Note(s):* <sup>a</sup>The magnitude of the contrast produced by the Action Alternative would be low as compared to other features and patterns in the viewshed per contrast ratings. The components would introduce elements/patterns common in the landscape that would be visually subordinate. Views of the Action Alternative would be relatively short in duration.

The Proposed Action would permanently change and therefore would be incompatible with the desired NHT scenic, recreational, cultural and historic, and natural resources, qualities, values, and associated settings for the portions of the three US 50 Carson Routes, the Carson River Route, the Walker River – Sonora Route, and the Pony Express NHT within the immediate FG of the Proposed Action in the NHT analysis area. The Proposed Action is anticipated to result in effects, such as changing the physical setting of NHTs (e.g., visual effects). These effects would be most pronounced where the Proposed Action would cross the Carson River and the Adrian Valley. The Proposed Action would be incompatible with but not substantially interfere with the nature, purpose, and primary uses of the NHTs for the following reasons: 1) the Carson Route, Carson Route – Dry Route, and Carson Route – Wet Route along US 50 no longer possess greater than average scenic values or afford opportunities for vicarious experiences characteristic of a high potential route segment; 2) high visual contrasts would be limited to the immediate FG; and 3) two of the three Proposed Action 345-kV transmission routes follow existing transmission line(s). Effects to the remaining California, Pony Express, and Old Spanish NHT segments would not rise to the level of incompatibility or substantial interference.

Impacts from the Proposed Action would be reduced with the implementation of the EMMs (Appendix C. EMMs AIR-9, BIO-16, BIO-35, CON-7, CON-13, CULT-2, CULT-4, CULT-6, NHT-1 through NHT-3, OPS-1, OPS-3, REC-20, VIS-1 through VIS-14) and the Historic Properties Treatment Plan (Appendix K).

**Additional Measures to Avoid and/or Minimize Impacts**

The BLM will continue to consult with the NPS, the Oregon California Trail Association, and National Pony Express Association on the GLWP. In addition to EMMs NHT-1 through NHT-3 (Appendix C), the BLM has added the following measure to mitigate impacts of the GLWP on NHTs. Where historic trail traces would be visible within approximately three miles of the GLWP (NHT inventory area) on BLM-administered land and have not been subject to a Class III cultural resources survey within the last 20 years, the Proponent would provide for a Section 110 Class II or targeted pedestrian inventory to field verify historic trail traces per BLM Manual 6280. The Proponent would provide the BLM with documentation of the presence (integrity and trail condition) or absence of historic trail traces within the three-mile viewshed of the GLWP prior to ground disturbance occurring within the NHT inventory area. The Proponent is encouraged to obtain authorization from private landowners to complete the Section 110 Class II or targeted pedestrian inventory.

#### **3.12.4.4 Direct and Indirect Impacts of Losee Transmission Line Route Group**

##### **Construction, Operations and Maintenance, and Decommissioning**

The Old Spanish NHT would be approximately five miles from the nearest portion of the 525-kV transmission line associated with Losee Transmission Alternative A. The transmission line and other components would not be visible from the Old Spanish NHT (refer to Figure 3-30). There would no impacts on the views from the Old Spanish Trail during construction, O&M, or decommissioning of the Losee Transmission

##### **Conformance of the Losee Transmission Line Route Group with the National Trails System Act Section 7(c)**

The Losee Transmission Alternative A would not be visible from the Old Spanish NHT within the NHT analysis area. Therefore, this Action Alternative would not be incompatible or substantially interfere with the nature and purposes for which the Old Spanish NHT was established.

#### **3.12.4.5 Direct and Indirect Impacts from TUSK, Beatty, and Scotty's Junction Transmission Line Route Group**

##### **Construction, Operations and Maintenance, and Decommissioning**

There would be no impact on NHTs and Trails Under Study for Congressional Designation associated with the TUSK, Beatty, or Scotty's Junction transmission alternatives because these Action Alternatives would not be visible from the NHTs.

##### **Conformance of the TUSK, Beatty, and Scotty's Junction Transmission Line Route Group with the National Trails System Act Section 7(c)**

The TUSK, Beatty, or Scotty's Junction Transmission Alternatives would not be visible from NHTs and Trails Under Study for Congressional Designation within the NHT analysis area. These Action Alternatives would not be incompatible or substantially interfere with the nature and purposes for which the NHTs and Trails Under Study for Congressional Designation were established.

#### **3.12.4.6 Direct and Indirect Impacts of Mason Valley WMA Transmission Line Route Group**

##### **Construction, Operations and Maintenance, and Decommissioning**

There would be no views of the Mason Valley WMA Transmission Alternative A or the Proposed Action from the FG of the California NHT Walker River segment. From the California NHT Walker River Segment, recreationists would have MG views of approximately 1.6 miles of the Mason Valley WMA Transmission Alternative A, which would be slightly more than the Proposed Action (approximately 1.0 mile). The existing rural development and Fort Churchill Generating Station would help reduce the impact of the visual change in setting that would result from the construction, O&M, and decommissioning of the overhead transmission lines, structures, and the approximately 371-acre Fort Churchill Substation. The presence of the Mason Valley WMA Transmission Alternative A and Proposed Action within the MG views from the California NHT Walker River segment would be visually discernible and may attract attention in the existing setting that contains elements and patterns of a rural farming community.

### **Conformance of the Mason Valley WMA Transmission Line Route Group with the National Trails System Act Section 7(c)**

The Mason Valley WMA Transmission Alternative A would permanently change the desired scenic, recreational, cultural and historic, and (to a lesser extent) natural resources, qualities, values, and associated settings of portions of the California NHT Walker River segment. The Mason Valley WMA Transmission Alternative A and the Proposed Action would not be incompatible or substantially interfere with the nature, purpose, and primary uses of the NHTs for the following reasons: 1) the California NHT Walker River Segment is not a designated high potential route segment nor is it given special management in the Comprehensive Management and Use Plan (NPS 1998) or Carson City Field Office Consolidated Resource Management Plan (BLM 2001); 2) visibility of the transmission line and Fort Churchill Substation would be limited to the MG; and 3) no identified NHT traces would be directly affected. As with the Proposed Action, impacts from the Mason Valley WMA Transmission Alternative A would be reduced with the implementation of EMMs (Appendix C. EMMs AIR-9, BIO-16, BIO-35, CON-7, CON-13, CULT-2, CULT-4, CULT-6, NHT-1 through NHT-3, OPS-1, OPS-3, REC-20, VIS-1 through VIS-14) and the Historic Properties Treatment Plan (Appendix K).

#### **3.12.4.7 Direct and Indirect Impacts of Carson River Transmission Line Route Group**

##### **Construction, Operations and Maintenance, and Decommissioning**

The three Carson River Transmission Alternative A 345-kV transmission lines would have the same effects to the US 50 NHT segments as the Proposed Action where they would cross US 50 into the Pine Nut Mountains and Churchill Butte. To the west, the Fort Churchill to Mira Loma and 345-kV Fort Churchill to Comstock Meadows #1 transmission lines would also cross the Carson River NHT segments at the same location as the Proposed Action with the same effects. When compared to the Proposed Action to the east, the 345-kV Fort Churchill to Comstock Meadows #2 line would cross Misfit Flats and be visible for greater distances along the US 50 NHT segments. NHT recreationists' views within the FG of the Carson River Transmission Alternative A would be consolidated due to the collocated crossing of the three 345-kV transmission lines. The collocation would result in reduced impacts to the scenic, cultural and historic, recreational, and natural setting and vicarious experience as a whole of the Carson River NHT segments in the immediate FG. When viewed from and near Fort Churchill, the 345-kV Fort Churchill to Comstock Meadows #2 line would be lower in elevation than the Proposed Action, near the limit of visibility, and would not be skylined. Therefore, the visual and historical settings would appear more intact due to the setting's landform scales being more prominent than the proposed transmission lines. The majority of the Carson River Transmission Alternative A would be farther away from the Walker River Segment of the California NHT than the Proposed Action, from Fort Churchill, and closer to the US 50 NHT segments.

South of the Carson River, the three 345-kV transmission lines associated with Carson River Transmission Alternative A would continue southeast for approximately 9.5 miles farther from the California NHT Walker River – Sonora Route than the Proposed Action. The three lines would cross the California NHT Walker River – Sonora Route, at a diagonal in the Adrian Valley similar to the Proposed Action, visible for approximately 17.1 miles (Alternative A) compared to approximately 18.1 miles (Proposed Action) within the 5-mile viewshed. Taken together, the trails would be crossed by the three Carson River Transmission Alternative A 345-kV transmission lines in 12 locations (Table 3-75) and collocated crossings are counted once.



**Table 3-76. Carson River Transmission Alternative A Impacts to California and Pony Express NHT Segments within the NHT Analysis Area**

<b>NHT-Designated Resources</b>	<b>Length of NHT within Carson River Alternative A Viewshed (est. miles)</b>	<b>Number of Carson River Alternative A Crossings<sup>a</sup></b>	<b>Scenic Impacts</b>	<b>Cultural and Historic Impacts</b>	<b>Recreational Impacts</b>	<b>Natural Impacts</b>
Fort Churchill State Historic Park (High Potential Historic Site)	N/A	0 Transmission Line	None	Minor <sup>b</sup>	None	None
Buckland Station	N/A	0 Transmission Line	None	None	None	None
CALI: Carson Route (US 50)	12.3	2 Transmission Lines	Minor	None	None	None
CALI: Carson Route – Dry Route (US 50)	7.0	1 Transmission Line	Minor	Minor	Minor <sup>c</sup>	Minor <sup>d</sup>
CALI: Carson Route – Wet Route (US 50)	7.1	0 Transmission Line	Minor	None	Minor	Minor
CALI: Carson Route (i.e., Carson River Route)	18.9	0 Transmission Line	Minor	Moderate <sup>e</sup>	Minor	Minor
POEX: Carson Route (i.e., Primary Route)	18.9	3 Transmission Line	Minor	Moderate	Minor	Minor
US 50 Auto Tour Route and Waysides	20.0	2 Transmission Lines	Minor	None	Minor	Minor
CALI: Walker River – Sonora Route	17.1	3 Transmission Lines	Moderate	Moderate	Minor	Minor
CALI: Central Overland Emigrant Route – Simpson Route #35E	45.0	6 Transmission Lines	Minor	Minor	Minor	Minor
<b>Total Est. Miles</b>	<b>126.5<sup>f</sup></b>					

*Table Acronym(s):* CALI – California National Historic Trail; Est. – Estimated; N/A – Not applicable; NHT – National Historic Trail; POEX – Pony Express National Historic Trail; US – United States

*Table Note(s):* <sup>a</sup>Existing, improved, and new access road crossings are provided for the Proposed Action only. Trail routes overlap, therefore, transmission crossings are not additive.

<sup>b</sup>The magnitude of the contrast produced by the Action Alternative would be low as compared to other features and patterns in the viewshed. The components would introduce elements/patterns common in the landscape that would be visually subordinate. Views of the Action Alternative would be relatively short in duration.

<sup>c</sup>NHT recreation and travel management opportunities and settings would be minimally modified by the Action Alternative. Contributing qualities would continue to define the character of the trail.

<sup>d</sup>Natural resources, including any key contributing qualities and characteristics, would have subtle effects from the Action Alternative. Contributing qualities would continue to define the character of the trail.

<sup>e</sup>The magnitude of contrast produced by the Action Alternative would attract attention and the components would be visually prominent in the views from NHT components per contrast ratings. Views of the Action Alternative would be notable in duration or extent. The inherent quality of interesting, but not outstanding, landscapes would be modified through the introduction of elements not common in the historical landscape, as seen from NHT-associated historic properties and/or interpretive areas.

<sup>f</sup>All routes overlap each other to some degree. For example, the US 50 Auto Tour Route overlaps 100% of the CALI Carson Route, Dry Route, and Wet Route – a total is provided only for alternative comparison.

Where the Carson River Transmission Alternative C (Fort Churchill to Mira Loma and 345-kV Fort Churchill to Comstock Meadows #1 lines, specifically) would cross US 50 and enter the Pine Nut Mountains, the two transmission lines would be higher in elevation and more visible to the US 50 NHT segments than the Proposed Action, but less visible to the Carson River NHT segments. To the east, both the 345-kV Fort

Churchill to Comstock Meadows #2 line of the Carson River Transmission Alternative C and the Proposed Action would ascend and descend Churchill Butte and be visible for similar distances along the US 50 and Carson River NHT segments. The Fort Churchill to Comstock Meadows #2 line would be closer, higher in elevation, skylined and backdropped, and visible from nearly half of the Fort Churchill State Historic Park in the FG and MG combined. At approximately 2.0 miles away, Carson River Transmission Alternative C would impact the vicarious experience presently available at the Fort Churchill historic site more than the Proposed Action and Carson River Transmission Alternative A, though the site’s visual setting would appear relatively unchanged. Depending on the location within the site, the Carson River Transmission Alternatives A and C and the Proposed Action would range from the landscape appearing intact and not attracting attention to the landscape being noticeably altered and beginning to attract attention. The magnitude of impact would depend on the visibility of the 345-kV transmission lines, the distance at which the lines would be viewed from, and the backdrop. Impacts on views from the Fort Churchill State Historic Park are discussed in more detail in Section 3.15 Visual Resources.

The three 345-kV transmission lines associated with Carson River Transmission Alternative C would head south from the Carson River crossing for approximately 7.9 miles, crossing the California NHT Walker River – Sonora Route perpendicularly at a consolidated location in northwestern Mason Valley instead of paralleling the NHT for approximately 4.5 miles in the Adrian Valley. This portion of the Mason Valley is characterized by a natural setting of wetlands, sloughs, sagebrush, and riparian vegetation which intermittently screen MG views. Both the Adrian Valley and this portion of the Mason Valley have similar integrity of setting and feeling. The perpendicular crossing of the Carson River Transmission Alternative C would have reduced visual impacts compared to the Proposed Action because the extent of impacts would be limited to an approximately 1.0-mile area (the immediate FG on either side of the crossing). This is compared to the Proposed Action which parallels the Walker River – Sonora Route for approximately 4.5 miles. Taken together, the trails would be crossed by the three Carson River Transmission Alternative C 345-kV transmission lines in 7 locations (Table 3-76); collocated crossings are counted once.

**Table 3-77. Carson River Transmission Alternative C Impacts to California and Pony Express NHT Segments within the NHT Analysis Area**

<b>NHT-Designated Resources</b>	<b>Length of NHT within Carson River Alternative C Viewshed (est. miles)</b>	<b>Number of Carson River Alternative C Crossings<sup>a</sup></b>	<b>Scenic Impacts</b>	<b>Cultural and Historic Impacts</b>	<b>Recreational Impacts</b>	<b>Natural Impacts</b>
Fort Churchill (High Potential Historic Site)	N/A	0 Transmission Line	Minor <sup>b</sup>	Moderate <sup>c</sup>	Minor <sup>d</sup>	None
Buckland Station	N/A	0 Transmission Line	Minor	Minor	Minor	None
CALL: Carson Route (US 50)	15.1	1 Transmission Line	Minor	Minor	Minor	None
CALL: Carson Route – Dry Route (US 50)	8.1	1 Transmission Line	Minor	Minor	Minor	Minor <sup>e</sup>
CALL: Carson Route – Wet Route (US 50)	8.2	0 Transmission Line	Minor	None	None	None

**Table 3-76. Carson River Transmission Alternative C Impacts to California and Pony Express NHT Segments within the NHT Analysis Area (continued)**

<b>NHT-Designated Resources</b>	<b>Length of NHT within Carson River Alternative C Viewshed (est. miles)</b>	<b>Number of Carson River Alternative C Crossings<sup>a</sup></b>	<b>Scenic Impacts</b>	<b>Cultural and Historic Impacts</b>	<b>Recreational Impacts</b>	<b>Natural Impacts</b>
CALI: Carson Route (i.e., Carson River Route)	19.0	1 Transmission Line	Minor	Moderate	Minor	Minor
POEX: Carson Route (i.e., Primary Route)	21.2	1 Transmission Line	Minor	Moderate	Minor	Minor
US 50 Auto Tour Route and Waysides	21.5	0 Transmission Line	Minor	Minor	None	None
CALI: Walker River – Sonora Route	19.3	1 Transmission Line	Minor	Minor	Minor	None
CALI: Central Overland Emigrant Route – Simpson Route #35E	48.0	1 Transmission Line	Moderate	Moderate	Minor	Minor
<b>Total Est. Miles</b>	<b>138.8<sup>f</sup></b>					

*Table Acronym(s):* CALI – California National Historic Trail; Est. – Estimated; N/A – Not applicable; NHT – National Historic Trail; POEX – Pony Express National Historic Trail; US – United States

*Table Note(s):* <sup>e</sup>Existing, improved, and new access road crossings are provided for the Proposed Action only. Trail routes overlap, therefore transmission crossings are not additive.

<sup>b</sup>The magnitude of the contrast produced by the GLWP would be low as compared to other features and patterns in the viewshed per contrast ratings. The GLWP components would introduce elements/patterns common in the landscape that would be visually subordinate. Views of the GLWP would be relatively short in duration.

<sup>c</sup>The magnitude of contrast produced by the GLWP would attract attention and the GLWP components would be visually prominent in views from NHT-associated historic properties and components per contrast ratings. Views of the GLWP would be notable in duration or extent. The inherent quality of interesting, but not outstanding, landscapes would be modified through the introduction of elements not common in the historical landscape, as seen from NHT-associated historic properties and/or interpretive areas.

<sup>d</sup>National Trail recreation and travel management opportunities and settings would be minimally modified by the GLWP. Contributing qualities would continue to define the character of the trail.

<sup>e</sup>Natural resources, including any key contributing qualities and characteristics, would have subtle effects from the GLWP. Contributing qualities would continue to define the character of the trail.

<sup>f</sup>All routes overlap each other to some degree. For example, the US 50 Auto Tour Route overlaps 100% of the CALI Carson Route, Dry Route and Wet Route – a total is provided only for alternative comparison.

**Conformance Statement for Carson River Transmission Line Route Group with the National Trails System Act Section 7(c)**

The Carson River Transmission Alternatives A and C and the Proposed Action would permanently change portions of the three US 50 Carson Routes, the Carson River Route, the Walker River – Sonora Route, and the Pony Express NHT within the immediate FG of these Action Alternatives in the NHT analysis area and would therefore be incompatible with the desired NHT scenic, recreational, cultural and historic, natural resources, qualities, values, and associated settings. The Carson River Transmission Alternatives A and C and the Proposed Action would be incompatible with but not substantially interfere with the nature, purpose, and primary uses of a portion of the NHTs for the following reasons: 1) the Carson River and Adrian Valley are not designated high potential route segments or given special management in the Comprehensive Management and Use Plan (NPS 1998) or Carson City Field Office Consolidated Resource Management Plan (BLM 2001); 2) high visual contrasts would be limited to the immediate FG; and 3) portions of the Carson River Transmission Alternatives A and C and the Proposed Action would follow an

existing transmission line(s). Effects to the remaining California, Pony Express, and Old Spanish NHT segments would not rise to the level of incompatibility or substantial interference.

Impacts from the Carson River Transmission Alternatives A and C and the Proposed Action on NHTs would be reduced with the implementation of the EMMs AIR-9, BIO-16, BIO-35, CON-7, CON-13, CULT-2, CULT-4, CULT-6, NHT-1 through NHT-3, OPS-1, OPS-3, REC-20, VIS-1 through VIS-14, and the Historic Properties Treatment Plan (Appendix K).

#### **3.12.4.8 Direct and Indirect Impacts from Amargosa and Esmeralda Substation Groups and Amargosa Microwave Group**

##### **Construction, Operations and Maintenance, and Decommissioning**

There would be no impact on NHTs and Trails Under Study for Congressional Designation associated with the AS-1, AS-2 (Proposed Action) ES-1, ES-2 (Proposed Action), ES-3, AM-1, or AM-2 (Proposed Action) because these Action Alternatives would not be visible from the trails.

##### **Conformance of the Amargosa and Esmeralda Substation Groups and Amargosa Microwave Group with the National Trails System Act Section 7(c)**

The AS-1, AS-2 (Proposed Action), ES-1, ES-2 (Proposed Action), ES-3, AM-1, or AM-2 (Proposed Action) would not be visible from NHTs and Trails Under Study for Congressional Designation within the NHT analysis area. These Action Alternatives would not be incompatible or substantially interfere with the nature and purposes for which the NHTs and Trails Under Study for Congressional Designation were established.

#### **3.12.4.9 Impacts from Anti-Perching/Nesting Mitigation Measure**

##### **Construction, Operations and Maintenance, Decommissioning**

Refer to Additional Measures to Avoid and/or Minimize Impacts for Bi-State sage-grouse and Mojave desert tortoise in Section 3.1.4.2 for detailed information regarding this mitigation measure. The anti-perching/nesting mitigation measure would have no impact on NHTs and Trails Under Study for Congressional Designation.

### **3.13 Land Use, Realty, and Indian Trust Assets**

Refer to Appendix AB. Other Resources/Uses Analyzed in Detail for a discussion of the affected environment and potential impacts associated with land use, realty, and Indian Trust Assets from the implementation of the Action and No Action Alternatives, with the exception of the discussion of Section 368 of the Energy Policy Act Of 2005/West-wide Energy Corridor. The affected environment and environmental consequences of the WWECs are provided below. Any changes that have been made to Section 3.13 are a result of comments and input on the Draft EIS/RMPA. Refer to Section 3.18.6.13 for the cumulative impacts associated with land use, realty, and Indian Trust Assets.

#### **3.13.3.6 Section 368 of the Energy Policy Act Of 2005/West-wide Energy Corridor**

Section 368 of the Energy Policy Act of 2005 (EPA) (PL 109-58), enacted August 8, 2005, directed the Secretaries of Agriculture, Commerce, Defense, Energy, and the Interior designate under their respective authorities' corridors on federal land in 11 western states for oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities (utility corridors). These corridors, referred to as the WWEC or Section 368 corridors, are recognized across multiple agencies as existing utility corridors and

identified as the preferred location for new utility lines. The land use analysis area is in portions of WVEC Region 1 (southern California, southern Nevada, and western Arizona) and Region 5 (northern California and western Nevada). The specific WVECs within the land use analysis area are described below and illustrated on Figure 3-31.

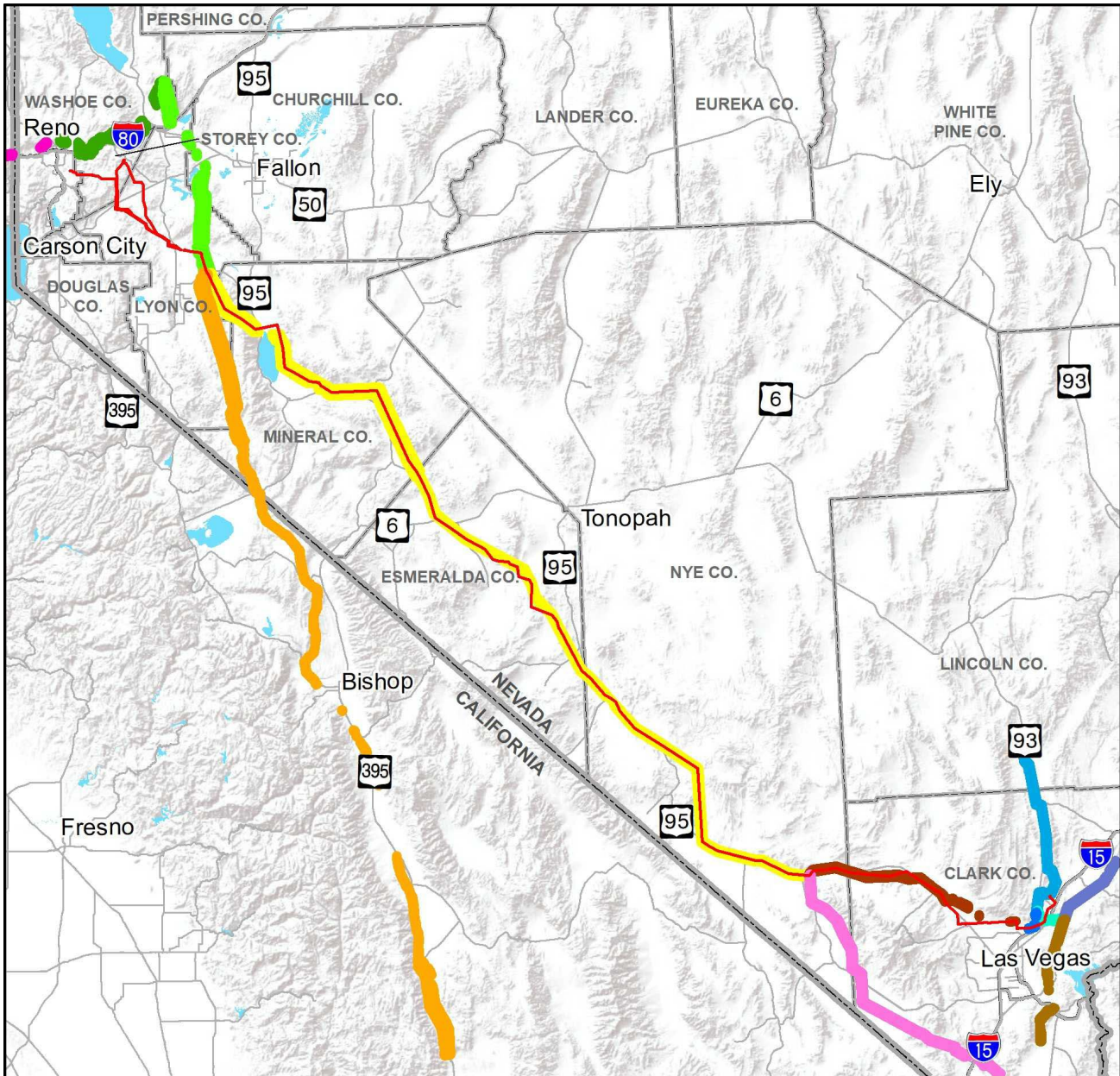
A Programmatic EIS was published to conduct the requisite environmental analysis for designation of these energy corridors and included the proposed designation of more than 6,000 miles of WVEC among the various agency land use plans (BLM 2008a). The WVECs can be designated on federal lands (except Tribal lands), but not on state, local agency, or private lands. This results in unconnected corridor segments with mixed land ownership. The BLM prepared an Approved Resource Management Plan Amendments/Record of Decision for Designation of Energy Corridors on BLM-Administered Lands in the 11 Western States on January 2009, which included Nevada (BLM 2009). In 2009, several organizations filed a complaint challenging the Programmatic EIS, DOI and USFS RODs, and associated Section 368 energy corridor designations (*Wilderness Society, et al. v. United States Department of the Interior, et al.*, No. 3:09-cv-03048-JW [N.D. Cal.]) pursuant to the EAct, NEPA, ESA, and the FLPMA. In 2012, the BLM, USFS, DOE, and the Department of Justice entered into a Settlement Agreement that contains specific actions to resolve the challenges in the complaint. The four principal components of the Settlement Agreement required the agencies to complete an interagency Memorandum of Understanding (MOU) addressing periodic corridor reviews, update agency guidance, update agency training, and complete a corridor study. The Settlement Agreement also identified specific Section 368 "corridors of concern." Section 368 "corridors of concern" are defined as "corridors identified by plaintiffs as having specific environmental issues." These are corridors that would have environmental impacts; extensive mitigation measures; or would require preparation of an EIS, alternative corridor considerations, or Land Use Plan Amendments (LUPAs). This Final EIS/Proposed RMPA is serving as that analysis for some of the corridors of concern as described below.

#### **WVEC 6-15**















Corridor 6-15 provides an east-west preferred pathway connecting the Sacramento and San Francisco metro areas with energy resources and customers in Nevada and other western states. The corridor is 3,500 feet wide, 27 miles long (73 miles long including gaps of non-BLM-administered lands), and is multi-modal including existing 69-kV, 115-kV, and 120-kV transmission lines and I-80. The corridor is within approximately three miles of six hydroelectric power plants. Corridor 6-15 is not considered a corridor of concern (DOE 2020).

#### **WVEC 15-17**

Corridor 15-17 connects multiple WVECs to provide a pathway from California across northwestern Nevada and spans from around Reno-Sparks, over the Virginia Mountains, and to the area east of the Pyramid Lake Indian Reservation. The corridor is approximately two miles wide, approximately 20 miles long (approximately 41 miles long including gaps of non-BLM-administered lands), and is multi-modal including existing 69-kV, 115-kV, and multiple 345-kV transmission lines; two natural gas pipelines; and I-80. The corridor is within two miles of three power plants and within five miles of 23 substations. Corridor 15-17 is not considered a corridor of concern (DOE 2020).

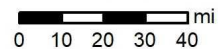


**Legend**

- |   |  |
|---|--|
|  Proposed Action   |  223-224    |
|  Transmission Line |  224-225    |
| West-wide Energy Corridors  |  37-223 (S) |
|  6-15              |  37-232     |
|  15-17             |  37-39      |
|  17-18             |  39-113     |
|  18-224            |  39-231     |
|  18-23             |  |



Scale: 1:3,000,000



No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure 3-31. West-wide Energy Corridors**

### **WWEC 17-18**

Corridor 17-18 also connects multiple WWECs to both the north and south, creating a continuous corridor network across BLM- and USFS-administered lands to the north into California and Oregon and to the south into Las Vegas. The corridor spans from the area east of the Pyramid Lake Indian Reservation south to the area west of the Walker River Reservation. WWEC 17-18 is approximately 2 miles wide, approximately 32 miles long (approximately 58 miles long including gaps of non-BLM-administered land), and is multi-modal, including an existing 750-kV transmission line along its entire length as well as 115-kV and 345-kV transmission lines. The corridor is within approximately five miles of five power plants and 13 substations. Corridor 17-18 is not considered a corridor of concern (DOE 2020).

### **WWEC 18-224**

Corridor 18-224 provides a north-south pathway for energy transport, spans from Carson City to the NTR and Las Vegas, and connects multiple WWECs. The corridor width ranges from 3,500 feet to 2 miles and is 244 miles long (257 miles long including gaps of non-BLM-administered land). The corridor is multi-modal including existing 115-kV, 138-kV, and 345-kV transmission lines. Corridor 18-224 is adjacent to the Amargosa Valley SEZ, within approximately 7 miles of the Gold Point SEZ, and within approximately 15 miles of the Millers SEZ. Additionally, Corridor 18-224 contains a solar power plant and is within approximately five miles of nine substations. Corridor 18-224 is not considered a corridor of concern (DOE 2020).

### **WWEC 18-23**

Corridor 18-23 identifies a north-south preferred pathway for interstate energy transport from east of Carson City to east of Bakersfield, California, and connects multiple WWECs from Oregon to southern California. The corridor width ranges from 1,320 feet to 2 miles wide and is 171 miles long (240 miles long including gaps of non-BLM-administered lands). The corridor is multi-modal including existing 115-kV, 138-kV, and 345-kV transmission lines as well as US 395. Corridor 18-23 is within approximately four miles of nine hydroelectric power plants. Corridor 18-23 is considered a corridor of concern due to its various compatibility considerations (DOE 2020).

### **WWEC 223-224**

Corridor 223-224 extends east-west along US 95 to the south of the Desert NWR and Nellis AFB and north of Red Rock Canyon NCA and the Spring Mountains NRA. The corridor ends at the junction of Corridors 18-224 and 224-225. The corridor width ranges from 2,050 feet to 3,500 feet and is 40 miles long (47 miles long including gaps of non-BLM-administered lands). The corridor is multi-modal including existing 138-kV transmission lines, US 95, one underground and multiple aboveground distribution lines, and telephone and fiber optic communication lines. Corridor 223-224 is considered a corridor of concern due to its various compatibility concerns (DOE 2019).

### **WWEC 224-225**

Corridor 224-225 runs northwest-to-southeast along the southwest border of Nevada beginning at the junction of Corridors 18-224 and 223-224 along US 95 in Nye County to the junction of Corridors 27-225 and 225-231 approximately seven miles southeast of Jean in Clark County. The corridor width is 3,500 feet and is approximately 86 miles long (there are no non-BLM-administered land gaps). Corridor 224-225 is multi-modal but is mostly unoccupied except for small segment crossings including 12.5-kV, 138-kV, 230-kV, and 500-kV transmission lines and a communication line. Corridor 224-225 is not considered a corridor of concern (DOE 2019).

### **WWEC 37-223(N) and 37-22(S)**

Corridor 37-223(N) stretches west near the southeast corner of the Desert NWR in southern Nevada intended to link with Corridor 223-224 near the northwest corner of Nellis AFB. The corridor width is 3,500 feet and less than 2 miles long (there are no non-BLM-administered land gaps). Corridor 37-223(S) in Region 1 begins just east of the southeast corner of the Desert NWR at the junction of Corridors 37-232 and 37-39 and extends seven miles to the south and west. Due to military-training requirements, Corridor 37-223(S) is designated as underground-only, however portions of the corridor have existing overhead transmission lines. Corridor 37-223(S) has a width of 2,400 feet and a length of approximately 3 miles (approximately 7 miles long including gaps of non-BLM-administered land). Both Corridors 37-223(N) and 37-223(S) are multi-modal including gas pipelines and 138-kV, 230-kV, and 500-kV transmission lines. The corridors are within approximately one mile of two substations. Based on the comprehensive resource conflict assessment, these two corridors are predominantly in medium and high potential conflict areas. Corridors 37-223(N) and 37-223(S) are not considered a corridor of concern (DOE 2019).

### **WWEC 37-232**

Corridor 37-232 goes north along US 93 to the east of the Desert NWR. The corridor begins at the junction of Corridors 37-223(N) and 37-39 near the southeast corner of the Desert NWR and Nellis AFB and ends at the junction of Corridors 232-233(E) and 232-233(W). Corridor 37-232 ranges in width from 2,640 feet to 3,500 feet and is approximately 60 miles long (there are no non-BLM-administered land gaps). The corridor is multi-modal including gas pipelines, 69-kV and 500-kV transmission lines, and US 93. Additionally, seven power plants are near the south end of the corridor. It is predominantly in high potential conflict areas based on the comprehensive resource conflict assessment, but is not considered a corridor of concern (DOE 2019).

### **WWEC 37-39**

Corridor 37-39 stretches from the southeast corner of the Desert NWR northwest to southeast for about three miles, and then east for about six miles to intersect with Corridors 39-113 and 39-231. The corridor width ranges from 1,800 feet to 3,500 feet and is approximately 9 miles long (there are no non-BLM-administered land gaps). The corridor is multi-modal including four gas pipelines; 69-kV, 138-kV, 230-kV, and 500-kV transmission lines; a railroad; and I-15. Based on the comprehensive resource conflict assessment, it is predominantly in medium potential conflict areas, and Corridor 37-39 is not considered a corridor of concern (DOE 2019).

### **WWEC 39-113**

Corridor 39-113 extends northeast beginning at the intersection with Corridors 37-39 and 37-231 northeast of Las Vegas to intersect with Corridors 113-114 and 113-116 northwest of Mesquite. The corridor width is 3,500 feet and is approximately 60 miles long (approximately 67 miles long including gaps of non-BLM-administered land). The corridor is multi-modal including four gas pipelines; 69-kV, 138-kV, 230-kV, 345-kV, 500-kV, and 1,000-kV transmission lines; a railroad; and I-15. Based on the comprehensive resource conflict assessment, it is predominantly in medium and high potential conflict areas. Corridor 39-113 is considered a corridor of concern due to its various compatibility concerns (DOE 2019).

### **WWEC 39-231**

Corridor 39-231 runs south in southern Nevada to the east of Las Vegas past Sunrise Mountain and west of Lake Mead NRA. The corridor width is 3,500 feet, except for a single pinch point of 500 feet, and is



approximately 23 miles long (approximately 36 miles long including gaps of non-BLM-administered land). The corridor is multi-modal, including 230-kV and 500-kV transmission lines, and some crossing pipelines. It is predominantly in medium potential conflict areas based on the comprehensive resource conflict assessment. Corridor 39-231 is considered a corridor of concern due to its various compatibility concerns (DOE 2019).

### **3.13.4.3 Direct and Indirect Impacts from Proposed Action**

#### **Land Uses and Land Use Plans**

##### **Construction, Operations and Maintenance, and Decommissioning**

The Proposed Action would follow existing corridors established by the respective BLM DO or FO and the WWEC established by the BLM. Approximately 52.5 miles of WWEC 18-244, approximately 32.6 miles of WWEC 223-224, and approximately 0.5 miles of WWEC 37-223(S) would require modifications with the implementation of the Proposed Action. In comparison, the existing segment of WWEC 18-244 is approximately 46.3 miles, WWEC 223-224 is approximately 33.0 miles, and WWEC 37-223(S) is approximately 0.5 miles. The Proposed Action's modification of WWEC 18-224 and WWEC 223-244 would result in the relocation/re-alignment becoming a preferred route for infrastructure/energy transport.

The WWEC 37-223(S) is located adjacent to the Small Arms Range and is currently restricted to underground facilities only. Within WWEC 37-223(S), the Proposed Action would be located between two existing overhead transmission lines (Lenzie to Northwest 500-kV and Grand Teton to Harry Allen 230-kV). There are three other overhead transmission lines (Harry Allen to Pecos 2 230-kV, Gypsum to Pecos 138-kV/Harry Allen to Pecos 3 230-kV, and Harry Allen to Pecos 1 230-kV) within the current underground only WWEC 37-223(S). The initial recommendation to designate the corridor as underground-only was because of constraints from military-training requirements. The addition of the Proposed Action would not restrict any military training requirements since it would be located between two existing lines and would not be taller than the existing structures. The April 2022 EPAct of 2005 Section 368 Energy Corridor Review Final Report: Regions 1-6 (BLM 2022a) did not recommend the modification of the portion of WWEC 37-223(S) to permit overhead transmission. Constructing the Proposed Action would meet the intent of the EPAct to improve reliability and enhance the capability of the national grid to deliver electricity. In addition, locating the Proposed Action within the designated corridor with existing utilities would meet the WWEC's intent to collocate energy to avoid or minimize environmental harm. Constructing the Proposed Action's 525-kV transmission line underground would be economically infeasible, would have greater permanent ground disturbance, and would not respond to the purpose and need to provide electric system reliability (refer to Sections 2.2.9 and 2.3.15 for more detail analysis of underground EHV 525-kV transmission lines).

The modification to the WWCEs would total approximately 23,343.3 acres of adjusted/re-aligned WWEC and approximately 72.6 acres of a proposed change to allow aboveground facilities. These potential modifications are addressed in Chapter 4. Resource Management Plan Amendments.

##### **Additional Measures to Avoid and/or Minimize Impacts**

There are no additional measures recommended to avoid and/or minimize impacts from the Proposed Action to WWEC 18-224, WWEC 223-224, or WWEC 37-223(S).

### 3.13.4.6 Direct and Indirect Impacts from Beatty Transmission Line Route Group

#### **Construction, Operations and Maintenance, and Decommissioning**

Portions of the Beatty Transmission Alternatives would follow existing corridors established by the respective BLM DO or FO and the WWEC 18-224 established by the BLM. There would be segments of the WWEC 18-224 that would require modifications with the implementation of the Beatty Transmission Alternatives (Table x.x) The portion of the existing WWEC 18-224 is approximately 26.0 miles in length and approximately 11,030.9 acres. The comparable segment of the Proposed Action would not require an adjustment/re-alignment of WWEC 18-244.

**Table 3-78. Beatty Transmission Alternatives Modifications to WWEC 18-244**

<b>Action Alternative</b>	<b>Adjusted Estimated Miles of WWEC 18-244</b>	<b>Adjusted/Re-aligned Estimated Acres of WWEC 18-244</b>
Beatty Transmission Alternative A	4.7	598.3
Beatty Transmission Alternative C	12.8	4,469.9
Beatty Transmission Alternative G	17.0	6,521.7
Beatty Transmission Alternative K	18.4	5,263.3
Beatty Transmission Alternative L	21.9	6,715.8

The potential modifications by Beatty Transmission Alternatives A, C, G, K, and L would require land use plan amendments and are addressed in Chapter 4. Resource Management Plan Amendments.

### 3.13.4.7 Direct and Indirect Impacts from Scotty's Junction Transmission Line Route Group

#### **Construction, Operations and Maintenance, and Decommissioning**

There would be a segment of the WWEC 18-224 that would require modification with the implementation of the Scotty's Junction Transmission Alternative A and the Proposed Action. Scotty's Junction Transmission Alternative B would follow the WWEC 18-224 established by the BLM and no modification would be required. Table x.x compares the Scotty's Junction Transmission Alternatives to the equivalent segments of the Proposed Action. The potential modifications from Scotty's Junction Transmission Alternative A and the equivalent portion of the Proposed Action would require land use plan amendments and are addressed in Chapter 4. Resource Management Plan Amendments

**Table 3-79. Scotty's Junction Transmission Alternatives Modifications to WWEC 18-244**

<b>Action Alternative</b>	<b>Adjusted Estimated Miles of WWEC 18-244</b>	<b>Adjusted/ Re-aligned Estimated Acres of WWEC 18-244</b>	<b>Existing Estimated Miles of WWEC 18-244</b>	<b>Existing Estimated Acres of WWEC 18-244</b>
Scotty's Junction Transmission Alternative A	11.7	4,548.6	10.4	4,288.3
Scotty's Junction Transmission Alternative A – Proposed Action	3.1	1,001.7	10.4	4,288.3
Scotty's Junction Transmission Alternative B	0	0	10.4	4,288.3
Scotty's Junction Transmission Alternative B – Proposed Action	3.1	1,001.7	10.4	4,288.3

### 3.13.4.8 Impacts from Anti-Perching/Nesting Mitigation Measure

#### **Construction, Operations and Maintenance, Decommissioning**

Refer to Additional Measures to Avoid and/or Minimize Impacts for Bi-State sage-grouse and Mojave desert tortoise in Section 3.1.4.12 for detailed information regarding this mitigation measure. The anti-perching/nesting mitigation measure would have no distinct impact differences for WWEC 18-224, WWEC 223-224, or WWEC 37-223(S).

### 3.14 Water Resources

Refer to Appendix AB. Other Resources/Uses Analyzed in Detail for a discussion of the affected environment and environmental consequences associated with water resources from the implementation of the Action and No Action Alternatives. Any changes that have been made to Section 3.14 are a result of comments and input on the Draft EIS/RMPA. Refer to Section 3.18.6.14 for the cumulative impacts associated with water resources.

### 3.15 Visual Resources

The term “visual resources” refers to the composite of terrain, geologic, and hydrologic features; vegetative patterns; and built features that influence the visual appeal of a landscape. Visual impacts are defined as the change to the visual environment resulting from the introduction of modifications to the landscape. This section describes the existing context of the visual environment and assesses the impacts from the Action Alternatives and the No Action Alternative.

#### 3.15.1 Issues Identified for Analysis

- What would the visual change be in the views from Sensitive Viewing Platforms (SVPs)?
- What would the impacts be to the views from TUSK?
- What would the magnitude of change be to the existing landscape characteristics and to the inherent scenic quality of the GLWP area?
- What would the magnitude of the change be to the views from the designated scenic byways within the GLWP area?
- Would the Action Alternatives conform to the VRM Class objectives established in the applicable RMPs?

#### 3.15.2 Analysis Area and Methodology

##### 3.15.2.1 Analysis Area

The visual resource analysis area was defined as the area of visibility out to five miles from the Action Alternatives’ transmission line centerline and equates to approximately 4,315 square miles (2,761,704 acres). The approximate five-mile distance is based on a combination of research, the type of GLWP components being assessed, and the existing characteristic landscape. Research conducted by Sullivan, et al. (2014) found that 500-kV lattice towers were judged noticeable to casual observers at distances of up to approximately 10 miles. Based on the characteristic landscape for the GLWP, it was determined that the proposed transmission lines may be visible at distances of up to approximately 10 miles, but that impacts would be discernible to the casual observer only up to approximately 5 miles away. The FG distance zone is defined as

the area from 0 to 3 miles from the proposed GLWP transmission lines or the SVPs, the MG distance zone is the area from 3 to 5 miles away, and the background is from 5 to 10 miles away. The immediate FG distance zone was also used to describe impacts from SVPs and is defined as the area from 0 to 0.5 miles from the GLWP component.

### 3.15.2.2 Methodology

#### **BLM Visual Resource Management**

The BLM has developed measurable standards for managing visual resources. The BLM VRM program establishes national policy and procedures for implementing a systematic and objective process to inventory and manage scenic (visual) values. In its planning process, the BLM weighs visual and competing resource values to allocate the VRM classes with associated management class objectives (Table 3-79) for a given area’s visual setting, as part of the VRM process. The BLM’s VRM system incorporates three primary components of scenic quality, viewer sensitivity, and visual distance zones to identify overall visual resource inventory (VRI) classes. These VRI components represent the relative scenic value of the existing landscape and provide the visual resource baseline to measure a proposed projects impacts on these values. Existing available VRIs for the three BLM DOs were used, to the greatest extent possible, to evaluate impacts to scenic values that would be created by the GLWP. Areas that were not covered by the existing DO VRIs, including large tracts of private land and non-BLM-administered lands, were subject to a GLWP-specific scenic quality evaluation that was completed for those areas.

**Table 3-80. BLM Visual Resource Management Class Objectives**

<b>VRM Class</b>	<b>Management Objective</b>
I	The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.
II	The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
III	The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be no more than moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
IV	The objective of this class is to provide for management activities that require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

*Table Acronym(s):* BLM – Bureau of Land Management; VRM –Visual Resource Management

*Table Source(s):* BLM 1986b

The existing landscape character and scenic quality for the visual resource analysis area were determined by delineating visual assessment units (VAUs). The VAUs and associated descriptions were based on the three DOs’ existing available VRI SQRUs. The VAUs describe the existing landscape character (baseline conditions) based on the landform and vegetation elements, the general degree of spatial enclosure of the terrain, and existing land use. The scenic quality, or the visual appeal of a landscape, of the VAUs was based on the DOs’ VRI SQRU ratings of A, B, or C, where available. Scenic quality is rated based on seven factors: landform, vegetation, water, color, adjacent scenery, scarcity, and built features generally on a scale from 1 to 5 for each factor (BLM 1986a). Landscapes considered to have the highest scenic value have a scenic quality rating of A; those with a rating of C are more common, less distinct landscapes.

Visual sensitivity reflects attitudes and perceptions held by people regarding the landscape and, in general, reflects the public's level of sensitivity for noticeable change to the landscape. Sensitive Viewing Platforms were selected to represent locally, regionally, or nationally known viewing areas where the public would view the GLWP from stationary locations (e.g., public parks, scenic overlooks) or linear locations (e.g., highways, trails). The change in views from SDAs within the visual resource analysis area were also evaluated.

The magnitude and intensity of impacts to visual resources from the construction, O&M, and decommissioning of the GLWP was determined by assessing the degree of change in the landscape character, scenic quality, and in the views of the casual observers from the SVPs. The direct visual resource impacts of the GLWP, including the magnitude of impacts in terms of the miles and acres of effect, was provided for each VAU and SVP, including any SDAs. In order to characterize the magnitude of the impacts, the amount (miles or acres) of the SVP that would have views of the GLWP component as well as the amount (miles or acres) of the GLWP component that would be seen from the SVP are determined based on the visibility from the SVP.

Impacts from the GLWP could result in changes to two of the seven scenic quality factors: built features and adjacent scenery. These two scenic quality factors were evaluated based on changes within the FG and MG distance zones of the GLWP components within each VAU. The FG and MG distance zones are where the GLWP might be viewed in detail and beyond this distance (greater than five miles), the texture and form of individual components would not be readily apparent in the landscape. The FG was evaluated separately from the MG within the VAU because the FG would be where the GLWP would be most evident. Since the GLWP components would be considered a built feature, an evaluation was made as to the level it may detract from the scenic quality of the VAU in the form of a negative intrusion or as a positive addition. Adjacent scenery is the degree to which scenery outside of the VAU being analyzed would enhance or detract from the overall impression of the scenery within the VAU.

The BLM Manual 8431 was used to evaluate the visual contrast created between the GLWP and the existing landscape from selected KOPs to assess potential visual resource impacts to BLM-administered lands. The visual contrast created between a proposed project and the existing landscape can be measured by comparing the project features or components with the major features in the landscape. The basic visual elements of form, line, color, and texture are used to make this comparison in addition to consideration of environmental factors incorporating the angle of observation and length of time the project would be in view. The determination whether the GLWP would be in conformance with the three DOs' VRM objectives was made using contrast rating forms, considering environmental factors, and reviewing photorealistic simulations. The degree of contrast criteria, as defined by the BLM Manual 8431, uses a rating scale from weak to strong. A weak degree of contrast is when the element contrast can be seen but does not attract attention. A moderate degree of contrast is when the element contrast begins to attract attention and begins to dominate the characteristic landscape. A strong degree of contrast is when the element contrast demands attention, will not be overlooked, and is dominant in the landscape (BLM 1986b). Refer to Appendix P for photorealistic simulations of the Action Alternatives from selected KOPs.

### **National Park Service Visual Resource Program**

The NPS is developing a Visual Resource Program (VRP) to help address visual resource issues throughout the NPS. The NPS VRP is a comprehensive inventory, planning, and park assistance program covering visual resource management to better enable the NPS to develop conservation strategies through BMPs and

collaboration efforts with stakeholders such as federal, state, and local agencies and private landowners. Two major components of the VRP are the VRI and the Visual Impact Assessment (VIA) process (Sullivan and Meyer 2019). The NPS VRI is a systematic method to describe views, assess scenic quality and other view values, and understand the risk of changes to the views. The intent of the NPS VIA process is to understand how changes in the landscape either within or adjacent to NPS-managed lands could impact the scenic quality of valued views and visitor experience of those views.

The NPS VIA process was completed for the GLWP components within the TUSK using an updated process developed by the NPS (known as the 2021 Draft National Park Service Visual Impact Assessment Methodology and Guidelines). The NPS VIA methodology extends the VRI's scenic quality inventory to include an assessment of project visibility along with a rating system to evaluate the changes in the visual landscape from selected viewpoints. Four of the existing TUSK VRI viewpoints and three additional viewpoints were selected by the NPS to evaluate the impacts from the GLWP. The analysis focused on the viewsheds from these seven viewpoints (also referred to as KOPs) to assess: 1) relative change in a view from the construction, O&M, and decommissioning activities related to the GLWP and the impacts on the visual landscape, 2) the effect on the viewer experience considering different user groups, and 3) the overall impact to park resources and visitors.

Based on the NPS VIA approach, the analysis of the GLWP impacts included an impact assessment form for each of the seven viewpoints. The impact assessment form consists of a direct assessment of various factors associated with documenting the compatibility of the proposed project with landscape character, contrast of visual elements, and the change in spatial characteristics. A four to five sliding level scale is used in evaluating the visual prominence of built projects including transmission lines projects. Individual raters completed an impact assessment form and through subsequent discussion, the multiple evaluators reached a consensus rating for each factor. A narrative description of the impacts was also provided for each of the factors as well as a discussion of the overall change that would be created by the GLWP. For each viewpoint, a photorealistic simulation was completed. The photorealistic simulations of the GLWP from the TUSK VIA viewpoints were used to support the overall VIA process.

### **Visibility Analysis**

A visibility analysis was performed using ArcGIS Spatial Analyst to identify all areas that would be visible from the Action Alternatives, including all GLWP components except for access roads. The analysis identified where the GLWP would be visible if there were no vegetation or structures to screen the GLWP components. This analysis, based on "bare earth" visibility, reflects the worst-case scenario in determining the visual impacts. Existing vegetation may help to minimize the impacts by screening views to and from the GLWP. However, since vegetation is subject to fire and disease, it cannot be considered as a permanent measure to reduce impacts.






## **3.15.3 Affected Environment**

### **3.15.3.1 Existing Landscape Characteristics and Scenic Quality**

The GLWP would lie within the Basin and Range physiographic province that makes up most of Nevada (EPA 2013). The Basin and Range physiographic province is characterized by steep, narrow, isolated mountain ranges—generally on a north-south axis—separated by wide, flat, sediment-filled valleys or basins. The resulting topography consists of an interesting mix of rounded rocks, eroded hills, and geologic features such as natural arches and granite spires. The vegetation in the region is dominated by sagebrush

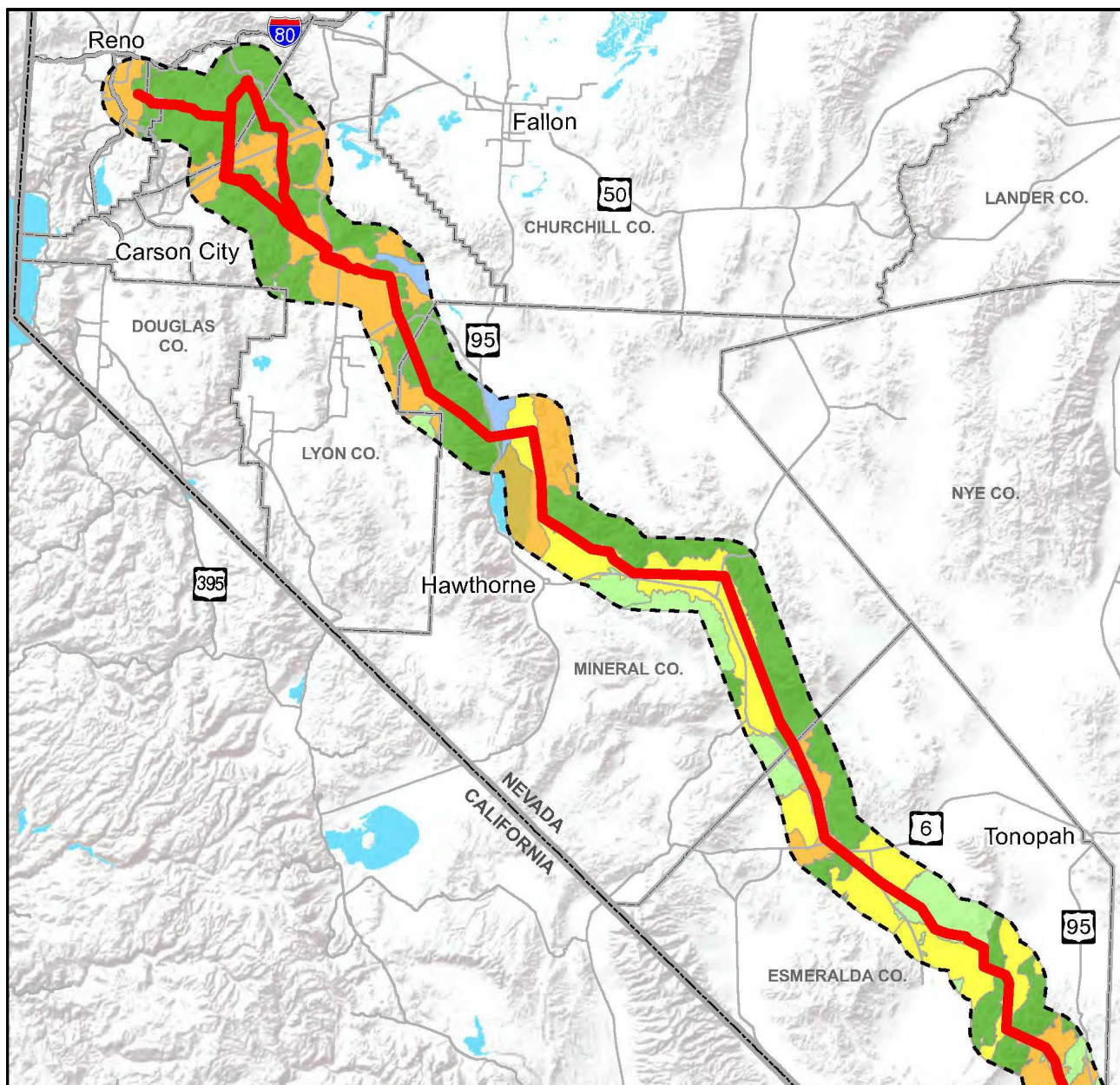
and short grasses. A total of 79 VAUs were delineated to reflect the existing landscape character and scenic quality within the visual resource analysis area (Table 3-80, Figure 3-32, and Figure 3-33). Table 3-80 describes the major VAU categories and detailed descriptions of the VAUs are in Appendix P.

**Table 3-81. Description of VAUs within the Visual Resource Analysis Area**

VAU Category	Number of VAUs	Total Est. Acres of VAU <sup>a</sup>	Percent of Analysis Area	Description of VAU Characteristics	Characteristic Photo
Mountain/Range	38	920,635.3	33	Large and prominent landforms with high vertical relief with a variety of vegetation	
Valley/Basin	19	920,905.7	33	Flat to rolling with few to no landforms with one or two major vegetation types	
Foothills	14	279,355.8	10	Low- to moderate-height landforms in a variety of sizes and shapes with varying vegetation	
Salt Flat/Dry Lake	7	621,445.4	22	Flat and sandy with exposed salt deposits with sparse vegetation	
Riparian Corridor	1	22,510.0	1	Concave and meandering with a great variety of vegetation	

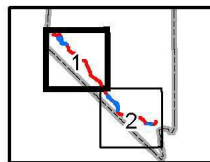
*Table Acronym(s):* Est. – Estimated; VAU – Visual analysis unit

*Table Note(s):* <sup>a</sup>Due to data alignment issues in the BLM visual resource inventory datasets, the total acres for all VAUs sum to a greater amount than the visual resource analysis area by approximately 3,151 acres (0.1 percent).

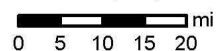


**Legend**

-  Proposed Action Transmission Line
-  Visual Resource Impact Analysis Area
- Visual Analysis Unit Landscape Type
-  Foothills
-  Mountain/Range
-  Riparian Corridor
-  Salt Flat/Dry Lake
-  Valley/Basin



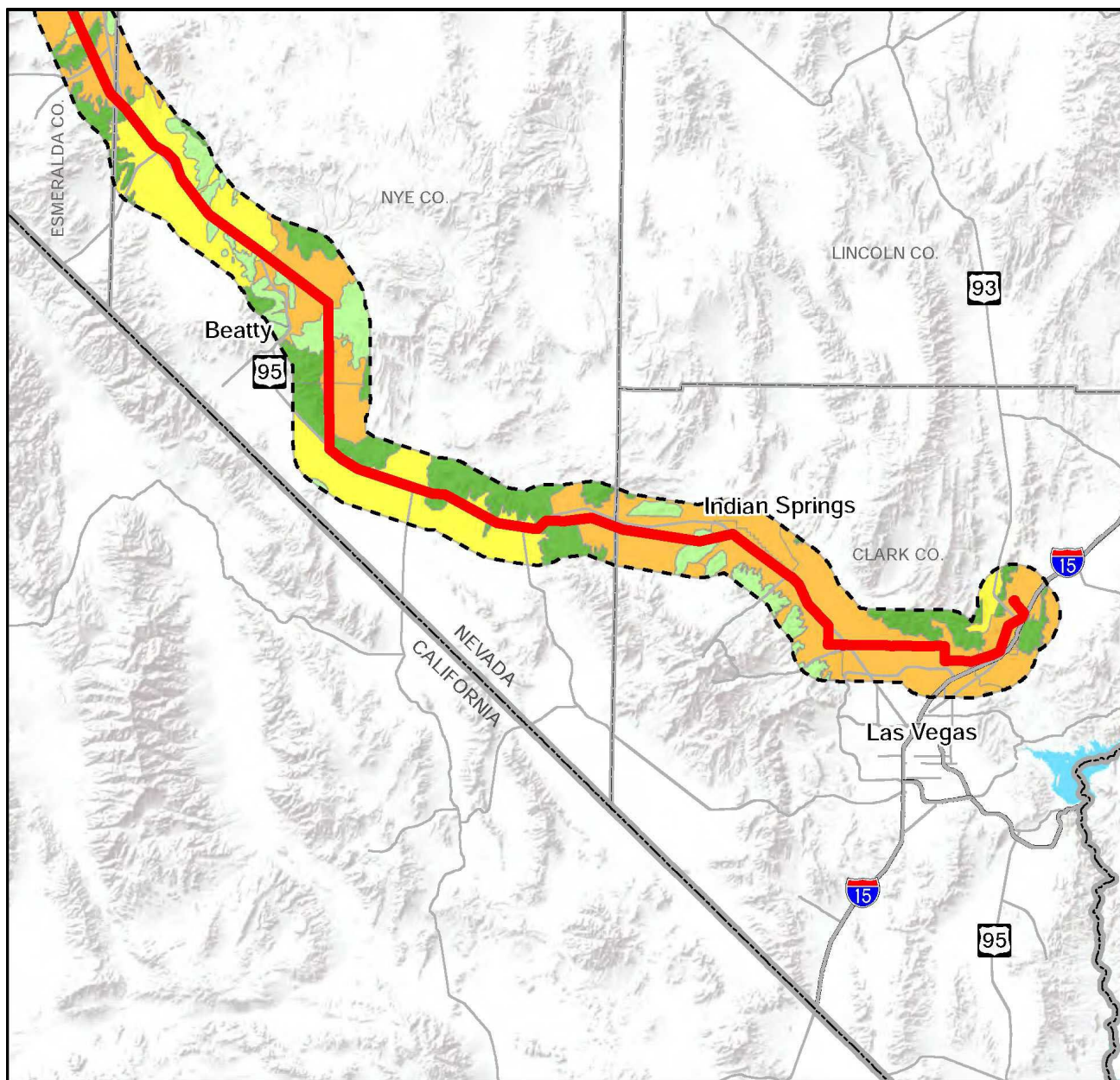
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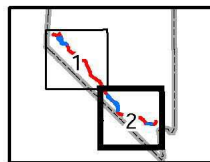
**Figure 3-32. VAU Categories within the Visual Resource Analysis Area (1 of 2)**



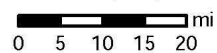


**Legend**

-  Proposed Action Transmission Line
-  Visual Resource Impact Analysis Area
- Visual Analysis Unit Landscape Type
-  Foothills
-  Mountain/Range
-  Riparian Corridor
-  Salt Flat/Dry Lake
-  Valley/Basin



Scale: 1:1,500,000



No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure 3-33. VAU Categories within the Visual Resource Analysis Area (2 of 2)**

In addition to the visual resource analysis area inventoried or classified for scenic quality by the BLM as part of the VRI conducted by the DO, a GLWP-specific scenic quality evaluation was completed for those areas not inventoried by the DO following BLM Handbook H-8410-1. Within the visual resource analysis area across the three DO VRIs, a total of approximately 39,102 acres were evaluated as Class A Scenery, approximately 1,205,341 acres were evaluated as Class B Scenery, and approximately 1,504,336 acres were evaluated as Class C Scenery<sup>10</sup>. Mapping related to scenic quality is in Appendix P.

### 3.15.3.1 Sensitive Viewing Platforms

Table 3-81 provides the rationale and the list of SVPs by category and type (stationary or linear). Community SVP boundaries were defined according to the US Census Bureau definition for the areas as either a city or a census designated place (CDP). Luning, however, is neither a city nor a CDP, so the boundary was developed by merging the census blocks that cover the residences and businesses in the area. Las Vegas, North Las Vegas, Reno, and Sparks were not included as Community SVPs due to the extensive development and infrastructure associated with these cities’ built environments and lack of discernible views of the GLWP when seen in context with the existing urban settings.

For linear platforms such as US 95, the entire length of the route within the visual resource analysis area was evaluated, not just from a single viewing location. According to NDOT, SR 360 had annual average daily traffic volumes of less than 900 vehicles in 2021 and SR 774 had no traffic volume information because of historically low traffic volume (NDOT 2020b). These two highways were not selected as SVPs because they are located at the edge of the MG of any project component and the level of traffic volume would indicate that these highways are not commonly traveled routes. In addition, a portion of US 95 is concurrent with US 6 for several miles northwest of Tonopah. For the visual resource analysis, the assessments of the change in views created by the Action Alternatives were also taken at specific locations within several of the SDAs. In addition to assessing the general visibility of the Action Alternatives from the SDAs within the visual resource analysis area, changes in views at specific viewpoints were evaluated at Big Dune SRMA, Desert NWR, Fort Churchill State Historic Park, Atwood Preserve, TUSK, and Walker Lake SRMA. Figures showing the location of all of the SVPs are provided in Appendix P.

**Table 3-82. Sensitive Viewing Platform Selection Rationale**

SVP Category	Visual Platform Type	List of Visual Platform Selections	Rationale for Selection
Communities	Stationary	Beatty, Indian Springs, Luning, Mina, Yerington, Dayton, Silver Springs, and Stagecoach	Communities/residential areas
Highways	Linear	CC 215, I-15, I-580, SR 156 <sup>a</sup> , SR 157 <sup>a</sup> , SR 160, SR 265, SR 266, SR 267, SR 361, SR 373, SR 426, SR 431 <sup>a</sup> , SR 439, SR 604, US 50, US 6, US 93, US 95, and US 95A	Major transportation corridors, including three scenic byways
Native American Tribes	Stationary	Las Vegas Paiute Reservation — Snow Mountain, Moapa Indian Reservation, Timbisha Shoshone Reservation, and Walker River Indian Reservation	Native American communities

<sup>10</sup> Approximately 16,074 acres were not evaluated for scenic quality that were within the visual resource analysis area because the landscape is located on DOD lands and was not accessible. There would not be any visual resource impacts from the Proposed Action to these DOD lands. Additionally, due to data alignment issues in the BLM VRI datasets, the total acres for all VAUs sum to a greater amount than the visual resource analysis area by approximately 0.1 percent.

**Table 3-81. Sensitive Viewing Platform Selection Rationale  
(continued)**

<b>SVP Category</b>	<b>Visual Platform Type</b>	<b>List of Visual Platform Selections</b>	<b>Rationale for Selection</b>
NHTs	Linear	California NHT, Old Spanish NHT, and Pony Express NHT	Cultural significance and recreation
SDAs	Stationary	Big Dune SRMA, Desert NWR, Floyd Lamb Park at Tule Springs, Fort Churchill State Historic Park, Gabbs Valley Range WSA, Grapevine Mountains WSA <sup>b</sup> , Ice Age Fossils State Park, La Madre Mountain Wilderness Area, Mason Valley WMA, Mount Stirling WSA, Red Rock Canyon NCA, Spring Mountains NRA, Atwood Preserve, TUSK, Walker Lake SRMA, and Willie McCool Regional Park	Special designation and recreation areas

*Table Acronym(s):* CR – County Road; I – Interstate; NCA – National Conservation Area; NHT – National Historic Trail; NRA – National Recreation Area; NWR – National Wildlife Refuge; SDA – Special Designation Area; SR – State Route; SRMA – Special Recreation Management Area; SVP – Sensitive Viewing Platform; TUSK – Tule Springs Fossil Beds National Monument; US – United States; WMA – Wildlife Management Area; WSA – Wilderness Study Area

*Table Note(s):* <sup>a</sup>Nevada-designated scenic byway

<sup>b</sup> Visual impacts to the Grapevine Mountains WSA only apply to the Scotty’s Junction Transmission Alternative A. The other Scotty’s Junction Transmission Alternatives would be more than five miles away from the Grapevine Mountains WAS and outside of the visual resource analysis area.

### 3.15.3.2 BLM VRM Objectives

The three DOs’ RMPs identify approximately less than 1 percent (5,532.3 acres) of BLM-administered lands within the visual resource analysis area to be managed as VRM Class I, 2 percent (approximately 31,998.1 acres) as VRM Class II, 24 percent (approximately 474,664.9 acres) as VRM Class III, and 45 percent (approximately 869,507.0 acres) as VRM Class IV (refer to Figure 3-34 and Figure 3-35<sup>11</sup>). The approximately 29 percent (559,297.0 acres ) of the remaining BLM-administered lands within the visual resource analysis area are unclassified for VRM.

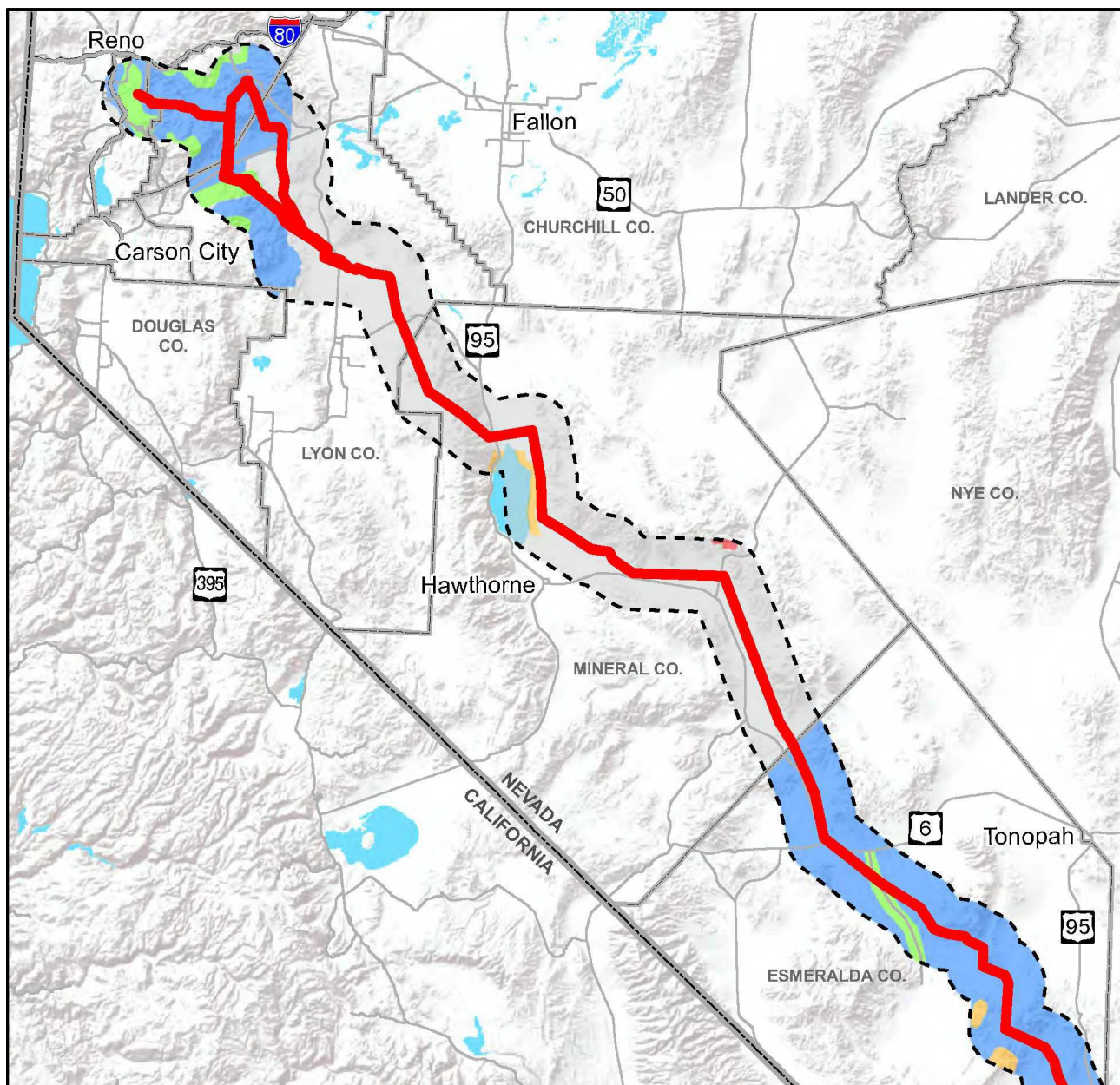
### 3.15.4 Environmental Consequences

The impacts from the Action Alternatives and No Action Alternative on visual resources were assessed by determining the magnitude of change in the landscape character, scenic quality, and views from the SVPs. An analysis of visual dominance, scale, and contrast was used to determine the degree that the Action Alternatives would attract attention and to assess the relative change in character as compared to the existing characteristic landscape and its inherent scenic quality.








#### 3.15.4.1 Direct and Indirect Impacts from No Action Alternative

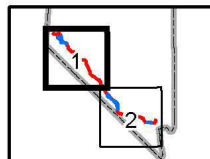
It is anticipated that under the No Action Alternative, the current uses and trends for the resources would continue to occur. There would be no impacts to visual resources attributed to the construction, O&M, and decommissioning of the GLWP under the No Action Alternative.

<sup>11</sup> Figure 3-34 and Figure 3-35 depict VRM classifications within the visual resource analysis area regardless of land ownership for illustration purposes and ease of viewing. The DO VRM classifications are only applicable on BLM-administered lands and the text within this section reflects this.

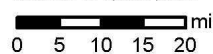


**Legend**

-  Proposed Action Transmission Line
-  Visual Resource Impact Analysis Area
- Visual Resource Management (VRM) Class
-  VRM Class I
-  VRM Class II
-  VRM Class III
-  VRM Class IV
-  Unclassified

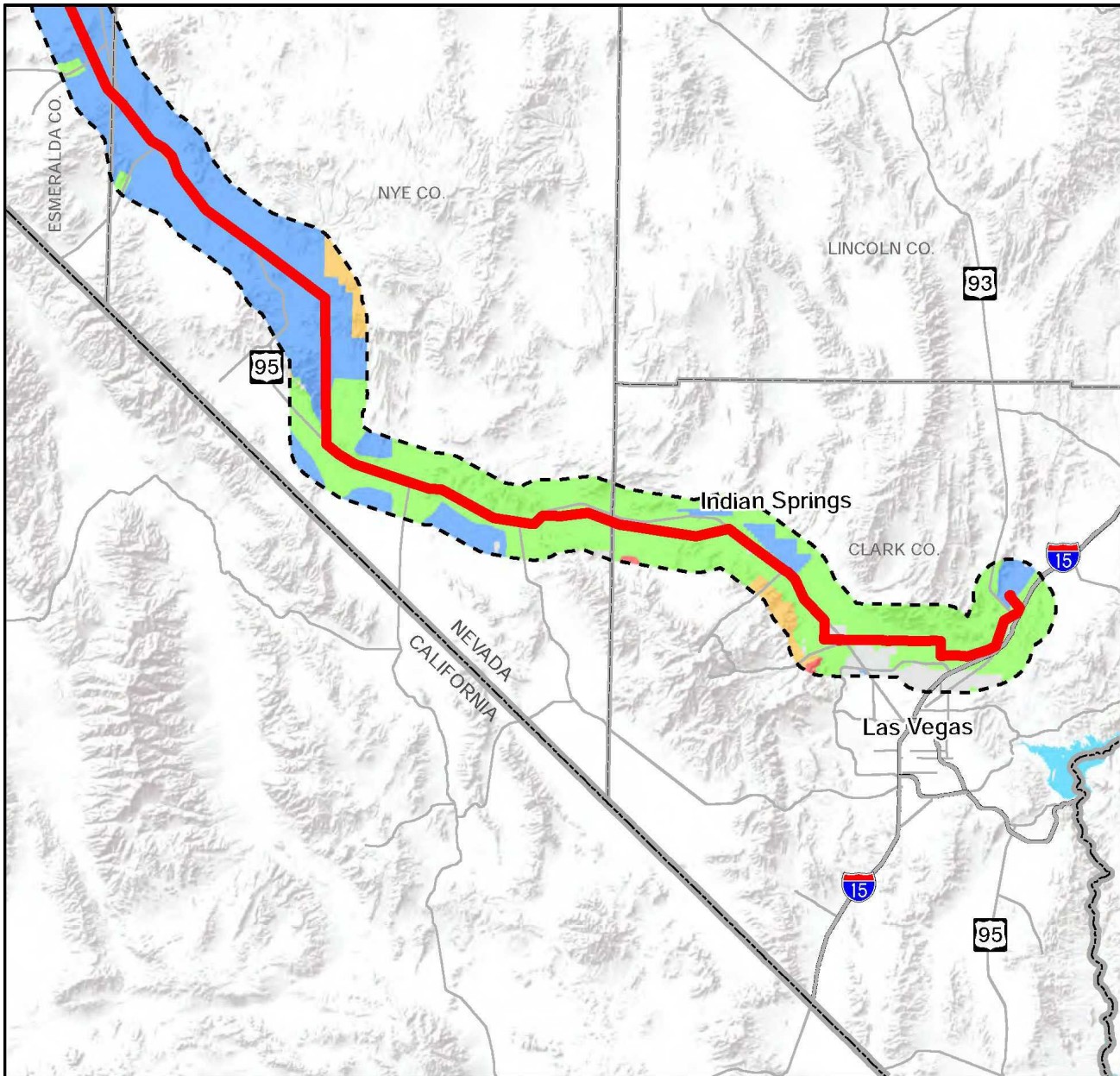


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




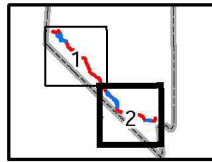
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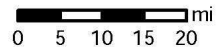
**Figure 3-34. VRM Classifications within the Visual Resource Analysis Area (1 of 2)**



**Legend**

-  Proposed Action Transmission Line
-  Visual Resource Impact Analysis Area
- Visual Resource Management (VRM) Class
-  VRM Class I
-  VRM Class II
-  VRM Class III
-  VRM Class IV
-  Unclassified



Scale: 1:1,500,000  


No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure 3-35. VRM Classifications within the Visual Resource Analysis Area (2 of 2)**

### 3.15.4.2 Direct and Indirect Impacts Common to All Action Alternatives

#### **Construction**

The existing landscape character and scenic quality would be affected during construction by activities such as vegetation removal, fugitive dust generated by the construction, and movement and presence of heavy equipment. Depending on the terrain, vegetation, and the built features present in the landscape, the construction activities would introduce forms, lines, colors, textures, and movement not common in the landscape that would begin to attract attention in the existing setting. In the short-term, the scenic quality of the VAUs would be lower when construction activities are taking place, especially within the FG. In the MG of the VAUs, the construction activities would create weak contrast with other elements, patterns and built features present because these short-term changes in the characteristic landscape and scenic quality may not be visually discernible.

Similarly, construction activities would temporarily affect the views from the SVPs because of fugitive dust and the presence and movement of heavy equipment. The construction-related impacts would vary in the degree of change in the FG views of the SVPs from starting to attract attention to beginning to dominate the view, depending on the type of construction activity taking place, the time of day when viewed, and the extent of existing built features within the viewshed<sup>12</sup>. In the MG of the SVPs, much of the ground disturbance from the construction and decommissioning activities associated with the GLWP would not attract attention or be readily apparent to the casual observer.

#### **Operations and Maintenance**

During O&M, the magnitude of change to the landscape character and scenic quality from the Action Alternatives would vary, depending on the existing landscape features and presence of existing built features (e.g., transmission lines, substations) that occur within or adjacent to the specific VAU. Similarly, the magnitude of the impacts on views from SVPs of the 525-kV and 345-kV transmission lines and GLWP components would vary depending on the existing landscape character and environmental factors, such as the distance to GLWP components, visibility conditions, and scale.

The GLWP would include expansion of the existing microwave radio facilities at Angel Peak, TV Hill, Pilot Peak, Montezuma, Sawtooth, Spotted Range, and Gold Mountain. The expansions would be within the existing footprint and there would be no impact to the existing landscape character, scenic quality, or views from any of the SVPs.

#### **Decommissioning**

The impacts associated with the decommissioning process would be similar to the construction-related effects for the Action Alternatives, but to a lesser degree. The existing landscape character and scenic quality would be affected by the generation of fugitive dust; movement of equipment and vehicles in and out of the permanent ROW area; and the presence of construction vehicles and equipment and material stockpiles. The decommissioning activities would create changes to landscape character that would be visually discernible (recognizable) to the casual observer in the FG area of the SVPs depending on the viewing distance, type of construction activity taking place, and time of day. There would be no apparent change in the MG view of the SVPs because much of the decommissioning activities, such as removal of the structures and substation, would not attract attention or be readily apparent at that distance.

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<sup>12</sup> A viewshed is an area of landscape that is visible to the human eye from a fixed vantage point.

### 3.15.4.3 Direct and Indirect Impacts from Proposed Action

#### **Construction and Decommissioning**

The Proposed Action would have effects similar to the impacts common to all Action Alternatives during construction and decommissioning activities.

#### **Operations and Maintenance**

##### **Landscape Character**

The Proposed Action permanent ROW area would occur predominantly within the Mountain/Range VAU category (43 percent), followed by the Valley/Basin VAU category (36 percent), Foothills VAU category (10 percent), Salt Flat/Dry Lake VAU category (10 percent), and Riparian Corridor VAU category (1 percent). Of the 79 VAUs, the Proposed Action would have no effect to the landscape character (i.e., the Proposed Action would not cross the VAU), negligible effects to the landscape character (i.e., changes would be subtle and would not attract attention of the casual observer) or would be a change that would begin to attract attention in the landscape character of 66 VAUs (84 percent).

The Proposed Action would result in changes to landscape character in 12 of the 79 VAUs (15 percent) that would be visually prominent and change the characteristic landscape, which is a relatively flat to gently rolling setting with low vegetation dispersed across these VAUs. These 12 VAUs are located north of Las Vegas, south of the US 95/SR 360 junction, and south of the Carson River predominantly in Salt Flat/Dry Lake and Valley/Basin VAU categories. The GLWP components, specifically the tower structures and substations, would begin to attract attention and dominate the visual setting due to the lack of existing built features (meaning landscapes that are primarily undeveloped) or due to the level of contrast with existing built features and the scale of the GLWP in the setting.

In one of the 79 VAUs, the Crater Flat VAU located in the BMDO, the Proposed Action would appear to change the characteristic landscape, demand attention, and dominate the visual setting due to the lack of existing built features, enclosed landscape, and the overall spatial scale of the GLWP transmission line structures in the setting. This VAU is in the Valley/Basin VAU category and is located near Betty in Crater Flat.

##### **Scenic Quality**

Within the Proposed Action permanent ROW area, there are approximately 0.4 acres of Class A Scenery (Class A) landscapes (less than 0.1 percent), approximately 5,269.2 acres of Class B Scenery (Class B) landscapes (38 percent), and approximately 8,603.5 acres of Class C Scenery (Class C) landscapes (62 percent). Of the 79 VAUs, the Proposed Action would have no impact to or would slightly reduce the scenic quality rating from existing conditions (0.5 numerical rating change) in the FG of 68 VAUs or approximately 72 percent of the visual resource analysis area (approximately 1,996,080.1 acres).

The Proposed Action would lower the scenic quality rating by 1.0 from existing conditions to the scenic quality in the FG that would occur in eight VAUs or approximately 23 percent of the visual resource analysis area (approximately 627,422.8 acres). These eight VAUs are located north of the US 95/SR 160 junction and south of the US 95/SR 360 junction predominantly in the Salt Flat/Dry Lake and Valley/Basin VAU categories. The characteristic landscapes in these eight VAUs would appear to be altered to the casual observer. The GLWP would be visually prominent due to the lack of existing built features, in particular the lack of existing transmission lines and the expansive landscapes that would have extended views of the GLWP components.

The Proposed Action would lower the scenic quality rating class from a Class B to a Class C in 3 of the 79 VAUs or for approximately 5 percent (approximately 141,349.3 acres) of the visual resource analysis area. The Crater Flat (BMDO-124 and SNDO-003), Montezuma Range (BMDO-105), and Oasis Valley (BMDO-118) are located around Beatty in Crater Flat and the Oasis Valley and southeast of Silver Peak in the Montezuma Range and are relatively undeveloped. In these three VAUs, the Proposed Action would be visually dominant in the characteristic landscape because the transmission line would be continuously skylined and would create a strong contrast in terms of form, line, and texture within the landscape setting.

The improvements to existing access roads and the construction of new access roads within the visual resource analysis area could create new opportunities for people to access and view the landscape in previously inaccessible BLM-administered lands. This may result in trampling vegetation and additional resource damage (such as increased erosion), which would indirectly affect the scenic quality in these areas.

#### **Effects on Views from Sensitive Viewing Platforms – Highways**

During the O&M phase of the Proposed Action, views from 10 of the 20 highway SVPs would not be noticeably changed because the Proposed Action would not attract or would just begin to attract the attention of the casual observer. Table 3-82 provides the list of the 10 highways and a summary of the impacts created by the Proposed Action. Further detailed discussion of these SVPs is not provided. The remaining 10 highway SVPs within the visual resource analysis area, including the designated scenic byways, are discussed in detail below and the visual impacts are summarized in Table 3-83 through Table 3-85.

#### **SR 156**

SR 156, also known as Mount Charleston/Lee Canyon Road, is a state-designated scenic byway in Clark County that would be crossed by 525-kV transmission line at approximately MP CL-17.4. The highway's most scenic portions are at higher elevations as it crosses through the Red Rock Canyon NCA and into the Humboldt-Toiyabe National Forest/Spring Mountains NRA. Other than the 525-kV transmission line, no other Proposed Action components would be visible from SR 156. Within the immediate FG (0 to 0.5 miles) of the transmission line crossing in either travel direction, the guyed lattice structures would demand attention and dominate the visual setting because of the contrast in form and scale of the taller guyed lattice structures compared to the existing transmission and distribution lines when viewed in close proximity to each other. The 525-kV transmission line would be predominantly backdropped against mountainous terrain and would be seen for less than eight minutes in the northbound (NB) motorist's central cone of vision (referred to as a head-on view). Beyond the immediate FG, the Proposed Action would attract less attention when viewed by NB motorists because the guyed lattice structures would begin to blend with the existing transmission and distribution lines and the apparent difference in scale would be reduced. The southbound (SB) motorists' views of the Proposed Action would only be in the immediate FG of the highway as the motorists turns onto SR 156 from US 95. There would be no views of the Proposed Action in the SB direction after passing under the transmission line. The Proposed Action would not lower the scenic quality to the degree that the scenic byway would lose its designations. Refer to Table 3-83 for summary of the impacts on views from SR 156 by the Proposed Action.

#### **SR 157**

SR 157, also known as Kyle Canyon Road, is a state-designated scenic byway in Clark County that would be approximately 0.6 miles from the closest portion of the GLWP 525-kV transmission line. The existing Northwest Substation is approximately 0.4 miles away from SR 157. The proposed 21.8-acre expansion of this substation would be visible in the FG of the highway. Eastbound and WB views in the FG and EB views



in the MG from SR 157 of the Proposed Action would be predominantly backdropped against mountainous terrain and viewed for approximately eight minutes in the EB direction and four minutes in the WB direction. In the EB and WB travel directions in the FG of SR 157, the Proposed Action would be recognizable and begin to attract attention. The expansion of the existing substation and introduction of additional monopole structures would change the visual setting and noticeably increase the magnitude of built features. However, the expansion of the Northwest Substation and tower structures would add features that are already present and common in the viewshed of the highway. There would be no views of the Proposed Action in the WB direction in the MG of SR 157. When viewed from the MG of the EB SR 157, the Proposed Action would not be readily discernable by the casual observer because the GLWP components are commonly found in this portion of the visual resource analysis area.

The scenic quality rating of the adjacent landscape viewed from this portion of the scenic byway would not change because the Proposed Action would add features that are currently present in the landscape and would not increase the magnitude of built features in the setting. Similar to SR 156, the highway's most scenic portions are at higher elevations as it crosses through the Red Rock Canyon NCA and into the Humboldt-Toiyabe National Forest/Spring Mountains NRA. There would be no impact to the scenic byway designation as a result of the GLWP. Refer to Table 3-83 for summary of the impacts on views from SR 157 by the Proposed Action.

#### **SR 431**

SR 431, also known as Mount Rose Highway, is a state-designated scenic byway in Washoe County. However, the portion of SR 431 within the visual resource analysis area is not part of the scenic designation, which begins at the SR 431/SR 28 roundabout in Incline Village and ends at Wedge Parkway just west of the Reno city limits. The existing setting consists of Reno's urban development which includes multistory residential/commercial development, overhead electrical lines, and stop light structures along with street lighting and signs. The 345-kV transmission line would be approximately 5.1 miles from the nearest segment of SR 431 designated as a scenic byway. There would be no views of the Proposed Action in the FG of the highway or for motorists traveling in either direction. In the MG of SR 431, several of the 345-kV transmission line structures would be skylined and partially obstructed by landforms and other built features in the landscape when viewed by NB motorists; there would be no view in the MG by the SB motorists. The portions of the Proposed Action visible in the MG from NB SR 431 would not attract attention within the visual setting because the views from the highway would not appear to noticeably change from the existing conditions. Refer to Table 3-85 for a summary of the impacts on views from SR 431 of the Proposed Action.

#### **SR 160, SR 265, SR 266, and US 6**

The 525-kV transmission line would cross SR 160 at approximately MP NY-37, SR 265 at approximately MP ES-16.5, SR 266 at approximately MP ES-37.8, and US 6 at approximately MP ES-21. Within the immediate FG of the transmission line crossing in either travel direction, the guyed lattice structures would demand attention and dominate the setting because of the strong contrast in form and scale of the guyed lattice structures compared to other elements and patterns in the landscape. Traveling at the posted speed limits, the duration of the view within the immediate FG would be approximately one minute or less.

**Table 3-83. Proposed Action Impacts on Views from CC 215, I-15, I-580, SR 361, SR 373, SR 426, SR 439, SR 604, US 50, and US 93**

<b>Highway SVP</b>	<b>Total Transmission Line in FG of SVP<sup>a</sup> (est. miles)</b>	<b>Visible Transmission Line in FG of SVP (est. miles)</b>	<b>Total Transmission Line in MG of SVP<sup>a</sup> (est. miles)</b>	<b>Visible Transmission Line in MG of SVP (est. miles)</b>	<b>Duration of View of Transmission Line Seen from SVP<sup>b</sup> (est. minutes)</b>	<b>Visibility Conditions</b>	<b>Existing Setting Conditions<sup>c</sup></b>	<b>Change to Visual Setting</b>
CC 215 EB	9.0	9.0	15.5	10.5	13	Backdropped	Substantially Developed	Relatively Unchanged
CC 215 WB	9.0	6.9	15.5	11.6	12	Backdropped	Substantially Developed	Relatively Unchanged
I-15 NB	17.0	16.6	2.7	2.7	16	Backdropped	Partially Developed	Relatively Unchanged
I-15 SB	17.0	17.0	2.8	2.1	16	Backdropped	Partially Developed	Relatively Unchanged
I-580 NB	0.3	0.3	3.3	3.2	3	Backdropped	Substantially Developed	Relatively Unchanged
I-580 SB	0.3	0.3	3.3	3.3	6	Backdropped	Substantially Developed	Relatively Unchanged
SR 361 NB	7.9	7.9	4.4	2.9	3	Backdropped	Partially Developed	Relatively Unchanged
SR 361 SB	7.9	7.9	4.4	4.3	6	Backdropped	Partially Developed	Relatively Unchanged
SR 373 NB	6.1	6.1	4.0	3.5	4	Backdropped	Partially Developed	Noticeably Altered
SR 373 SB	6.1	4.3	4.0	2.0	<1	Skylined	Partially Developed	Noticeably Altered
SR 426 EB	0.4	0.4	2.6	2.5	1	Backdropped	Substantially Developed	Relatively Unchanged
SR 426 WB	0.4	0.0	2.5	0.0	-	No Views	Substantially Developed	Not Visually Discernible
SR 439 NB	13.8	6.2	4.7	2.3	9	Backdropped	Partially Developed	Not Visually Discernible
SR 439 SB	13.8	5.9	4.7	2.0	10	Backdropped	Partially Developed	Not Visually Discernible
SR 604 NB	7.2	5.7	8.0	3.2	9	Backdropped	Substantially Developed	Not Visually Discernible
SR 604 SB	7.2	4.0	8.0	6.1	8	Backdropped	Substantially Developed	Not Visually Discernible

**Table 3-82. Proposed Action Impacts on Views from CC 215, I-15, I-580, SR 361, SR 373, SR 426, SR 439, SR 604, US 50, and US 93  
(continued)**

<b>Highway SVP</b>	<b>Total Transmission Line in FG of SVP<sup>a</sup> (est. miles)</b>	<b>Visible Transmission Line in FG of SVP (est. miles)</b>	<b>Total Transmission Line in MG of SVP<sup>a</sup> (est. miles)</b>	<b>Visible Transmission Line in MG of SVP (est. miles)</b>	<b>Duration of View of Transmission Line Seen from SVP<sup>b</sup> (est. minutes)</b>	<b>Visibility Conditions</b>	<b>Existing Setting Conditions<sup>c</sup></b>	<b>Change to Visual Setting</b>
US 50 EB	23.2	20.7	13.2	8.0	13	Skylined and Backdropped	Substantially Developed	Not Visually Discernible
US 50 WB	23.2	19.2	13.2	4.3	13	Skylined and Backdropped	Substantially Developed	Not Visually Discernible
US 93 NB	6.9	6.3	2.2	0.0	3	Backdropped	Substantially Developed	Not Visually Discernible
US 93 SB	6.9	6.9	2.2	1.5	5	Backdropped	Substantially Developed	Not Visually Discernible

*Table Acronym(s):* CR – County Road; EB – Eastbound; Est. – Estimated; FG – Foreground; I – Interstate; MG – Middleground; NB – Northbound; SB – Southbound; SR – State Route; SVP – Sensitive viewing platform; US – United States; WB – Westbound

*Table Note(s):* <sup>a</sup>The miles represented reflect the amount of total seen and unseen miles of transmission line in the FG or MG of SVPs.

<sup>b</sup>The mph used to calculate duration is based on the 2019 Nevada Speed Limit Map (NDOT 2019). If there are multiple speed limits within the visual resource analysis area, the lower speed limit was used. SR 426 is concurrent with a segment of South Meadows Parkway within Reno and the speed limit is estimated at 35 mph.

<sup>c</sup>Existing setting conditions categorizes the landscape as developed, substantially developed, partially developed, or undeveloped. Developed landscapes are considered to have landscapes with built features that dominate the setting's elements and patterns. Substantially developed landscapes are considered to have built features that make up the predominant elements and patterns in the setting. Partially developed landscapes are considered to have some built features, but natural features in the landscape make up the predominant elements and patterns in the setting. Undeveloped landscapes have little to no built features and features' elements and patterns in the landscape dominate the setting.

**Table 3-84. Proposed Action Impacts on Views from SR 156, SR 157, and SR 267**

<b>Impact Considerations</b>	<b>SR 156 NB</b>	<b>SR 156 SB</b>	<b>SR 157 EB</b>	<b>SR 157 WB</b>	<b>SR 267 EB</b>	<b>SR 267 WB</b>
Total Transmission Line in FG of SVP <sup>a</sup> (est. miles)	6.2	6.2	8.4	8.4	6.1	6.1
Visible Transmission Line in FG of SVP (est. miles)	6.2	4.6	8.3	5.0	6.1	-
Total Transmission Line in MG of SVP <sup>a</sup> (est. miles)	4.1	4.1	4.2	4.2	4.2	4.2
Visible Transmission Line in MG of SVP (est. miles)	1.3	0.8	3.8	0.5	4.2	0.9
Duration of View of Transmission Line Seen from SVP <sup>b</sup> (est. minutes)	6	<1	9	4	5	-
Est. Acres of Components in FG of SVP	-	-	21.8	21.8	-	-
Est. Acres of Components Visible in FG of SVP	-	-	21.8	21.8	-	-
Est. Miles of Distribution Line in FG of SVP	-	-	-	-	-	-
Est. Miles of Distribution Line Visible in FG of SVP	-	-	-	-	-	-
Visibility Conditions	Backdropped	Backdropped	Backdropped	Backdropped	Backdropped	Not Visible
Existing Setting Conditions <sup>c</sup>	Undeveloped	Undeveloped	Partially Developed	Partially Developed	Undeveloped	Undeveloped
Change to Visual Setting FG	Visually Discernible to Dominant	Visually Dominant	Visual Discernible/ Would Not Attract Attention	Visual Discernible/ Would Not Attract Attention	Begin to Attract Attention	No Change

*Table Acronym(s):* EB –Eastbound; Est. – Estimated; FG – Foreground; MG –Middleground; NB – Northbound; SB – Southbound; SR – State Route; SVP – Sensitive viewing platform; WB – Westbound

*Table Note(s):* <sup>a</sup>The miles represented reflect the amount of total seen and unseen miles of transmission line in the FG or MG of SVP.

<sup>b</sup>The mph used to calculate duration is based on the 2019 Nevada Speed Limit Map prepared by NDOT (2019). If there are multiple speed limits within the visual resource analysis area, the lower speed limit was used.

<sup>c</sup>Existing setting conditions categorizes the landscape as developed, substantially developed, partially developed, or undeveloped. Developed landscapes are considered to have with built features that dominate the setting's elements and patterns. Substantially developed landscapes are considered to have built features that make up the predominant elements and patterns in the setting. Partially developed landscapes are considered to have some built features but the natural features in the landscape make up the predominant elements and patterns in the setting. Undeveloped landscapes have little to no built features and features' elements and patterns in the landscape dominate the setting.

**Table 3-85. Proposed Action Impacts on Views from SR 160, SR 265, SR 266, and US 6<sup>a</sup>**

<b>Impact Considerations</b>	<b>SR 160 NB</b>	<b>SR 160 SB</b>	<b>SR 265 NB</b>	<b>SR 265 SB</b>	<b>SR 266 EB</b>	<b>SR 266 WB</b>	<b>US 6 EB</b>	<b>US 6 WB</b>
Total Transmission Line in FG of SVP <sup>b</sup> (est. miles)	6.4	6.4	15.7	15.7	6.4	6.4	10.0	10.0
Est. Miles of Transmission Line Visible in FG of SVP	6.0	3.2	15.7	14.9	6.3	6.3	10.0	10.0
Total Transmission Line in MG of SVP <sup>b</sup> (est. miles)	4.1	4.1	5.1	5.1	4.2	4.2	4.8	4.8
Est. Miles of Transmission Line Visible in MG of SVP	2.8	0	3.4	2.3	2.1	2.1	4.2	4.8
Duration of View of Transmission Line Seen from SVP <sup>c</sup> (est. minutes)	4	<1	19	17	5	2	13	8
Est. Acres of Ancillary GLWP Components in FG of SVP	-	-	109.1	109.1	-	-	109.1	109.1
Est. Acres Visible of Ancillary GLWP Components in FG of SVP	-	-	109.1	0	-	-	109.1	109.1
Est. Miles of Distribution Line in FG of SVP	-	-	0.5	0.5	-	-	0.5	0.5
Est. Miles of Distribution Line Visible in FG of SVP	-	-	0.5	0	-	-	0.5	0.5
Visibility Conditions <sup>d</sup>	Backdropped	Skylined	Backdropped/ Skylined	Backdropped	Backdropped/ Skylined	Skylined	Backdropped	Not Visible
Existing Setting Conditions	Undeveloped	Undeveloped	Undeveloped	Undeveloped	Undeveloped	Undeveloped	Undeveloped	Undeveloped

**Table 3-84. Proposed Action Impacts on Views from SR 160, SR 265, SR 266, and US 6<sup>a</sup>  
(continued)**

<b>Impact Considerations</b>	<b>SR 160 NB</b>	<b>SR 160 SB</b>	<b>SR 265 NB</b>	<b>SR 265 SB</b>	<b>SR 266 EB</b>	<b>SR 266 WB</b>	<b>US 6 EB</b>	<b>US 6 WB</b>
Change to Visual Setting FG	Visually Prominent/ Attract Attention	Visually Dominant	Visually Prominent	Visually Prominent	Visually Prominent/ Attract Attention	Visually Prominent/ Attract Attention	Visually Dominant	No Change
Change to Visual Setting MG	Visual Discernible/ Would Not Attract Attention	No Change	Visual Discernible/ Would Not Attract Attention	Visual Discernible/ Would Not Attract Attention	Not Visually Discernible	Not Visually Discernible	Not Visually Discernible	No Change

*Table Acronym(s):* EB – Eastbound; Est. – Estimated; FG – Foreground; MG – Middleground; NB – Northbound; SB – Southbound; SR – State Route; SVP – Sensitive Viewing Platform; US – United States; WB – Westbound

*Table Note(s):* <sup>a</sup>The collocated portions of US 6 and US 95 are accounted for in the US 6 analysis and are not included as part of the US 95 visual impact considerations.

<sup>b</sup>The miles represented reflect the amount of total seen and unseen miles of transmission line in the FG or MG of SVP.

<sup>c</sup>The mph used to calculate duration is based on the 2019 Nevada Speed Limit Map prepared by NDOT (2019). If there are multiple speed limits within the visual resource analysis area, the lower speed limit was used.

<sup>d</sup>Existing setting conditions, categorizes the landscape as developed, substantially developed, partially developed, or undeveloped. Developed landscapes are considered to have landscapes with built features that dominate the setting's elements and patterns. Substantially developed landscapes are considered to have built features that make up the predominant elements and patterns in the setting. Partially developed landscapes are considered to have some built features but the natural features in the landscape make up the predominant elements and patterns in the setting. Undeveloped landscapes have little to no built features and features' elements and patterns in the landscape dominate the setting.

**Table 3-86. Proposed Action Impacts on Views from SR 431, US 95, and US 95A**

<b>Impact Considerations</b>	<b>SR 431 EB</b>	<b>SR 431 WB</b>	<b>US 95 NB</b>	<b>US 95 SB</b>	<b>US 95A NB</b>	<b>US 95A SB</b>
Total Transmission Line in FG of SVP <sup>a</sup> (est. miles)	-	-	204.7	204.7	32.0	32.0
Est. Miles of Transmission Line Visible in FG of SVP	-	-	195.0	195.2	29.8	27.3
Total Transmission Line in MG of SVP <sup>a</sup> (est. miles)	3.2	3.2	34.3	34.3	24.8	24.8
Est. Miles of Transmission Line Visible in MG of SVP	3.0	-	16.9	21.3	16.4	16.3
Duration of View of Transmission Line Seen from SVP <sup>b</sup> (est. minutes)	1	-	192	192	17	15
Est. Acres of Ancillary GLWP Components in FG of SVP	-	-	239.8	239.8	360.3	360.3
Est. Acres Visible of Ancillary GLWP Components in FG of SVP	-	-	239.8	239.8	360.3	360.3
Est. Miles of Distribution Line in FG of SVP	-	-	10.4	10.4	-	-
Est. Miles of Distribution Line Visible in FG of SVP	-	-	0.9	3.1	-	-
Visibility Conditions	Skylined	Not Visible	Skylined/ Backdropped	Skylined/ Backdropped	Skylined/ Backdropped	Backdropped
Existing Setting Conditions <sup>c</sup>	Developed	Developed	Undeveloped to Substantially Developed	Undeveloped to Substantially Developed	Undeveloped to Partially Developed	Undeveloped to Partially Developed
Change to Visual Setting FG	No Change	No Change	Visually Discernible to Dominant	Visually Discernible to Dominant	Visually Discernible to Dominant	Visually Discernible to Dominant
Change to Visual Setting MG	Not Visually Discernible	No Change	Visually Discernible/ Begin to Attract Attention	Visually Discernible/ Begin to Attract Attention	Visually Discernible/ Begin to Attract Attention	Visually Discernible/ Begin to Attract Attention

*Table Acronym(s):* EB – Eastbound; Est. – Estimated; FG – Foreground; GLWP – Greenlink West Transmission Project; MG – Middleground; NB – Northbound; SB – Southbound; SR – State Route; SVP – Sensitive Viewing Platform; US – United States; WB – Westbound

*Table Note(s):* <sup>a</sup>The miles represented reflect the amount of total seen and unseen miles of transmission line in the FG or MG of SVP.

<sup>b</sup>The mph used to calculate duration is based on the 2019 Nevada Speed Limit Map prepared by NDOT (2019). If there are multiple speed limits within the visual resource analysis area, the lower speed limit was used. For US 95, a speed limit of 70 mph was used, which is the predominant speed limit for US 95 in the visual resource analysis area.

<sup>c</sup>Existing setting conditions categorizes the landscape as developed, substantially developed, partially developed, or undeveloped. Developed landscape are considered to have landscapes with built features that dominate the setting's elements and patterns. Substantially developed landscapes are considered to have built features that make up the predominant elements and patterns in the setting. Partially developed landscapes are considered to have some built features but the natural features in the landscape make up the predominant elements and patterns in the setting. Undeveloped landscapes have little to no built features and features' elements and patterns in the landscape dominate the setting.

The Proposed Action 525-kV transmission line within the FG from NB SR 160, NB and SB SR 265, EB and WB SR 266, and EB and WB US 6 would attract attention, be visually prominent, and begin to dominate the visual setting primarily because the guyed lattice structures are not common features in the relatively undeveloped viewsheds. In the MG of the NB SR 160 and SR 265, SR 266, and US 6 in both travel directions, the portions of the Proposed Action visible would not attract the attention of the casual observer because the guyed lattice structures would be backdropped by the mountainous terrain and blend in with the existing landscape at that distance. The duration of views (combined travel direction) of the Proposed Action would be approximately 5 minutes on SR 160, 36 minutes on SR 265, 7 minutes on SR 266, and 21 minutes on US 6. The NB motorists' views within the FG of SR 265 would include the ES-2 (Proposed Action) substation for approximately three minutes and approximately one minute when viewed from the MG of the highway. For NB motorists, views of ES-2 would be equally skylined and backdropped against mountainous terrain with unobstructed views of the substation facility. Views in the SB direction of ES-2 (Proposed Action) from SR 265 would be less than one minute in duration. The entire substation facility would be visible from NB SR 265 in the FG. In addition, EB and WB motorists in the FG and MG on US 6 would also see the entire ES-2 (Proposed Action) facility, which would be predominantly backdropped against mountainous terrain and viewed head-on from the highway. The EB motorists' views within the FG of US 6 would include ES-2 (Proposed Action) for approximately one minute and approximately three minutes when traveling WB. There would be no MG views of the substation when traveling EB along US 6 but there would be when traveling WB for approximately or for one minute. Refer to Table 3-84 for summary of the impacts on views from SR 160, SR 265, SR 266, and US 6 by the Proposed Action.

#### **SR 267**

SR 267 would be approximately 0.3 miles from the closest portion of the 525-kV transmission line. Other than the 525-kV transmission line, no other Proposed Action components would be visible from this highway. Eastbound motorists' views in the FG and MG on SR 267 of the 525-kV transmission line would be backdropped against mountainous terrain, unobstructed, predominantly head-on, and visible for approximately 5 minutes. The portions of the Proposed Action visible from EB SR 267 in the FG would begin to attract attention because of the scale and form of the guyed lattice structures are common in the landscape. In the MG, the portions of the Proposed Action visible from EB and WB SR 267 would not attract attention because the guyed lattice structures would begin to blend in with the existing landscape at that distance. There would be no views of the Proposed Action in the WB direction in the FG of SR 267. Refer to Table 3-83 for summary of the impacts on views from SR 267 by the Proposed Action.

#### **US 95**

The Proposed Action generally follows the US 95 corridor for approximately 228.5 miles from North Las Vegas (approximately MP CL-86.8) to just north of Walker Lake (approximately MP MI-81.4). The 525-kV transmission line would cross the highway seven times at approximately MP CL-93.1, MP NY-44.2, MP NY-76.0, MP NY-85.0, MP NY-96.4, MP ES-20.0, and MP MI-74.2. Within the immediate FG from the crossing of the 525-kV transmission line in either travel direction, the guyed lattice structures would demand attention and dominate the visual setting because of the contrast in form and scale of the guyed lattice and monopole structures compared to other elements and patterns in the existing setting at each of these crossing locations. At the posted speed limit of 70 mph, the duration of the view within the immediate FG would be less than one minute. Overall, the duration of views of the Proposed Action components from US 95 would be approximately 3 hours across approximately 224.5 miles of the highway



in the visual resource analysis area. Refer to Table 3-85 for summary of the impacts on views from US 95 by the Proposed Action.

In addition to the crossings, for approximately 88.1 miles the Proposed Action 525-kV transmission line would run generally parallel to the highway within the immediate FG. The guyed lattice structures would introduce elements/patterns that would be visually dominant and create strong contrast as compared to other features in the landscape when viewed from the immediate FG of US 95 in either travel direction. Beyond the immediate FG, but still within the FG of the US 95, NB and SB motorists' views of the 525-kV transmission line and the other Proposed Action components would be both skylined and backdropped against mountainous terrain, depending on the location along the highway. The majority of the views of the 525-kV transmission line in the FG in either travel direction along US 95 would be predominantly continuous and unobstructed. The Proposed Action would be located between 0.5 miles and 3 miles of other high-voltage transmission lines and smaller distribution lines for approximately 32.2 miles. At these locations along US 95 outside the immediate FG, the 525-kV transmission line would attract less attention because of the greater distance from the highway and the presence of other overhead transmission lines and structures.

The AS-2 (Proposed Action), ES-2 (Proposed Action), Northwest Substation expansion, six distribution lines, and two amplifier sites would also be visible in the FG of US 95 and two distribution lines would be seen in the MG. Where the AS-2 (Proposed Action) and the ES-2 (Proposed Action) substations would be built, the new approximately 109-acre facilities would demand attention and dominate the landscape. The relatively undeveloped landscape would be altered from the FG view of US 95 in either travel direction.

Views in the MG from US 95 of the 525-kV transmission line would be consistently backdropped against mountainous terrain and seen intermittently. The Proposed Action would be visually discernible but would not attract the attention of the casual observer. The visual contrast of the GLWP 525-kV transmission line would be low due to the viewing distance, mountainous terrain backdrop, and the guyed lattice structures which would blend in with the existing built features and/or background landscape.

#### **US 95A**

Both the GLWP 525-kV and 345-kV transmission lines would cross US 95A in Lyon County. The GLWP 525-kV transmission line would cross the highway at approximately MP LY-4.0, the 345-kV Mira Loma transmission line at approximately MP LY-23.8, the 345-kV Comstock Meadows #1 at approximately MP LY-24.3, and the 345-kV Comstock Meadows #2 at approximately MP LY-24.4. Within the immediate FG from the crossings of the 525-kV and 345-kV transmission lines in either travel direction, the transmission line structures would demand attention and dominate the visual setting because of the contrast in form and scale of the guyed lattice and steel pole H-frame structures compared to other elements and patterns in the setting at each of these locations. At the posted speed limit, the duration of the view within the immediate FG at these crossings would be less than one minute. Refer to Table 3-85 for summary of the impacts on views from US 95A by the Proposed Action.

Northbound motorists' views in the FG on US 95A of the 525-kV transmission line would be predominantly skylined, partially obstructed, and predominantly head-on. The segments of the 525-kV transmission line visible in the FG from the US 95A would attract attention and begin to dominate the visual setting. The views of the landscape from the US 95A FG would appear to be noticeably altered because of the contrast in size and form compared to the existing H-frames and distribution lines and the close proximity to the proposed guyed lattice structures to the highway, which for the most part, would be predominately skylined.

Southbound motorists' views in the FG and MG on US 95A of the 525-kV transmission line associated with the Proposed Action would be predominantly backdropped against mountainous terrain, intermittently seen, and would be generally parallel to the highway where visible. The portions of the Proposed Action visible from the SB US 95A in the FG and MG would not attract attention because of the existing built features including H-frames and distribution lines, as well as the rugged mountainous landforms that would backdrop the proposed guyed lattice transmission line.

Northbound and SB motorists' views in the FG and MG on US 95A of the 345-kV transmission lines and the Fort Churchill Substation would be predominantly backdropped against mountainous terrain, intermittently seen, and generally parallel. The portions of the Proposed Action visible beyond the immediate FG from US 95A but still within the FG would be visually discernable and begin to attract attention. The GLWP components would create patterns and elements that are common and similar in scale to other built features in the landscape, such as the existing Fort Churchill Generating Facility, various industrial and commercial buildings, and numerous transmission lines (three steel pole H-frames and multiple distribution lines).

#### **Effects on Views from Sensitive Viewing Platforms – Communities**

Impacts to seven of the eight Community SVPs are summarized in Table 3-86. The remaining Community SVP, Beatty, is discussed in more detail below.

#### ***Beatty***

The Beatty Community SVP totals approximately 11,321.5 acres of which the Proposed Action would be visible from approximately 17 percent (1,892.1 acres) of this SVP within the visual resource analysis area. From the visible area, approximately 51 percent (963.4 acres) of the area would have views of the Proposed Action from the FG and approximately 49 percent (928.7 acres) would have views from the MG. Within the FG of the Beatty Community SVP, the Proposed Action would vary from being visually recognizable to attracting attention because it would introduce built features not common in the existing setting. Due to the distance and varied terrain, the Proposed Action from the MG of the Beatty SVP would not attract attention because it would not be readily discernible in the landscape.

The Proposed Action, at its closest location, would be approximately 0.6 miles from the Beatty Community SVP. A total of approximately 9.5 miles of the Proposed Action 525-kV transmission line would be visible from this viewpoint and no other GLWP components would be visible. There would be approximately 6.1 miles of 525-kV transmission line visible in the FG and approximately 3.4 miles of 525-kV transmission line visible in the MG from the Beatty Community SVP. Views of the Proposed Action would be predominantly backdropped against mountainous terrain and seen intermittently.

#### **Effects on Views from Sensitive Viewing Platforms – Special Designation Areas**

Impacts to 9 of the 15 SDA SVPs would range from none to where the changes to landscape character would be visually discernible (recognizable) to the casual observer and begin to attract attention. These impacts are summarized in Table 3-87 with the exception of the Willie McCool Regional Park. The effects on views from this regional park were assessed from the parking area and not from the entirety of the park. The Proposed Action would not be visually discernible from Willie McCool Regional Park because there are existing transmission lines that would be in front of the Proposed Action 525-kV transmission lines. The Proposed Action would be visually discernible in the setting of six SDA SVPs and are discussed in more detail below: TUSK, Desert NWR, Big Dune SRMA, Mason Valley WMA, Atwood Preserve, and Walker Lake SRMA.

### **TUSK**

The impacts to visual resources within the TUSK based on the NPS visual management programs are provided in Section 3.15.5 NPS TUSK Visual Impact Assessment. In this section, the analysis assesses the visibility of the Proposed Action from the entire TUSK as an SVP. The TUSK SVP totals approximately 22,716.2 acres; the Proposed Action would be visible from almost the entire SVP. From this SVP, approximately 92 percent (20,775.8 acres) of the visible area within the TUSK would have views of the Proposed Action in the FG and approximately 8 percent (1,921.5 acres) would have views in the MG. Depending on their location, casual observers within the TUSK SVP would view approximately 33.9 miles of the Proposed Action in addition to the Northwest Substation expansion area (approximately 21.8 acres). There would be approximately 28.6 miles of transmission line visible in the FG from TUSK and approximately 5.3 miles of transmission line visible in the MG from SVP. The entire Northwest Substation expansion would also be visible in the FG of the TUSK.

Views of the 525-kV transmission line visible in the FG and MG from the TUSK near the urbanized area of North Las Vegas/Las Vegas (south and east of the Las Vegas Paiute Reservation — Snow Mountain) would not attract attention or be visually discernible in the visual setting because of the existing built features and infrastructure. The components of the Proposed Action would repeat common elements in the urbanized landscape. The adjacent landscape north of the Las Vegas Paiute Reservation — Snow Mountain is relatively undeveloped. In the FG of this area of the TUSK, the Proposed Action would attract attention and begin to dominate the visual setting because the guyed lattice structures would create recognizable contrast in terms of form and texture that are not common in the landscape. The Proposed Action would not be visually discernible by the casual observer in the MG of this area of the TUSK because the open lattice design of the transmission line structures would blend with the background of the Spring Mountains.

### **Desert NWR**

The Desert NWR SVP totals approximately 1,627,981.4 acres; the Proposed Action would be visible from approximately 5 percent (80,016.2 acres) of this SVP within the visual resource analysis area. From the area visible, approximately 33 percent (26,619.3 acres) of the Desert NWR SVP would have views of the Proposed Action in the FG and approximately 67 percent (53,396.9 acres) would have views in the MG. Additionally, approximately 49.6 miles of the Proposed Action would be visible within the FG and approximately 24.3 miles would be visible in the MG from the Desert NWR SVP.

There would be no components of the Proposed Action within the FG from the Desert NWR Visitor Center viewpoint. Approximately 7.8 miles of the Proposed Action within the MG of this viewpoint would be visible. The Proposed Action would not be visually discernible by the casual observer in the MG of the Desert NWR Visitor Center viewpoint because the open lattice design of the transmission line tower would blend with the background of the Spring Mountains.

### **Big Dune SRMA**

Big Dune SRMA totals approximately 11,472.5 acres; the Proposed Action would be visible from approximately 82 percent (9,358.9 acres) within the visual resource analysis area. Approximately 54 percent (5,024.9 acres) of the visible area would be in the FG of the Proposed Action and approximately 46 percent (4,334.0 acres) would be in the MG of the Proposed Action. Approximately 7.9 miles and approximately 3.9 miles of the Proposed Action would be visible from the FG and MG, respectively, of the Big Dune SRMA SVP. Additionally, the approximately 109-acre AS-2 (Proposed Action) would be entirely visible in the FG of the SRMA.

The Proposed Action would begin to attract attention in the FG of the Big Dune SRMA because the scale, form, and texture of the new substation would create discernible contrast in the landscape. The Proposed Action would be apparent to the casual observer but would not attract attention in the MG of the Big Dune SRMA because of the backdrop of the Yucca and Skull mountains and the distance from the SRMA to the substation and transmission lines.

#### ***Mason Valley WMA***

The Mason Valley WMA SVP totals approximately 17,550.7 acres; the Proposed Action would be visible from approximately 87 percent (15,263.3 acres) of this SVP within the visual resource analysis area. From the visible area, approximately 75 percent (11,530.1 acres) of the area would have views of the Proposed Action in the FG of the SVP and approximately 25 percent (3,733.2 acres) would have views in the MG. The 525-kV transmission line and the Fort Churchill Substation would be visible from the Mason Valley WMA.

Approximately 20.3 miles of the Proposed Action 525-kV and 345-kV transmission lines would be visible in the FG and approximately 7.1 miles in the MG from this SVP. Additionally, the entire approximately 360-acre Fort Churchill Substation would be visible in the FG of the Mason Valley WMA SVP. In the FG of the Mason Valley WMA, the Proposed Action would attract attention and begin to dominate the visual setting. The introduction of the proposed Fort Churchill Substation in terms of the size and scale of the components and the forms, lines, and textures would create contrast at a much larger magnitude than the built forms present in the landscape. The Proposed Action would be discernible by the casual observer but would not attract attention in the MG of the Mason Valley WMA because it would be partially screened by the dense vegetation associated with the Carson River riparian corridor and the various sloughs of the WMA.

#### ***Atwood Preserve***

The Atwood Preserve totals approximately 1,094.0 acres; the entire Preserve would be within the FG of the Proposed Action. The Proposed Action would be visible from approximately 84 percent (922.1 acres) of the Preserve. Additionally, approximately 10.1 miles of the Proposed Action would be visible from this SVP.

Approximately 3.1 miles of the Proposed Action would be visible within the FG of the Atwood Preserve Overlook viewpoint. The Proposed Action would not be visible in the MG from the Atwood Preserve Overlook. From the Ranch Ponds viewpoint, approximately 3.9 miles of the Proposed Action within the FG of this viewpoint would be visible and approximately 2.5 miles within the MG of this viewpoint would be visible. Views of the 525-kV transmission line visible in the FG from the Atwood Preserve Overlook and Ponds viewpoints would attract attention, be visually prominent, and begin to dominate the visual setting. The visual setting would appear altered because of the scale and form of the guyed lattice structures and their relatively close proximity (less than three miles) to these two viewpoints, even with the backdrop of the adjacent mountains. Approximately 3.1 miles and approximately 6.4 miles of the Proposed Action transmission line would be visible from the FG and MG, respectively of the Atwood Preserve Overlook viewpoint. No other GLWP components would be visible from the Preserve.

#### ***Walker Lake SRMA***

The Walker Lake SRMA totals approximately 64,707.0 acres; the Proposed Action transmission line would be visible from approximately 65 percent (42,333.2 acres) of the SVP within the visual resource analysis area. No other Proposed Action components would be visible from this SRMA. From the area visible, approximately 84 percent (35,468.0 acres) of the Walker Lake SRMA SVP would have views of the Proposed Action in the FG and approximately 16 percent (6,865.1 acres) would have views in the MG. Additionally, approximately 28.0 miles and approximately 2.8 miles of the Proposed Action would be visible from the FG and MG of the SVP, respectively.

From the Sand Dune Point Day Use Area viewpoint, approximately 5.3 miles of the Proposed Action transmission line within the FG of this viewpoint would be visible and approximately 4.2 miles within the MG of this viewpoint would be visible. Views of the 525-kV transmission line visible in the FG from the Sand Dune Point Day Use Area viewpoint would attract attention and be more visually prominent than the existing H-frame transmission line. The visual setting in the FG would appear to be altered because of the scale and form of the guyed lattice structures and their relatively close proximity to the viewpoint, even with the backdrop of the adjacent Gillis Range. The Proposed Action would not be visually discernible by the casual observer in the MG of the Sand Dune Point Day Use Area viewpoint because the open lattice design of the transmission line structures would blend with the background of the mountains.

#### **Effects on Views from Sensitive Viewing Platforms – National Historic Trails**

Impacts to all three NHT SVPs are discussed in below and summarized in Table 3-88. The visual resource analysis area includes four different segments of the California NHT, Walker River, Carson River, US 50, and I-80 totaling approximately 86.9 miles. Approximately 16.0 miles of the Old Spanish NHT and approximately 22.0 miles of the Pony Express NHT would occur within the visual resource analysis area.

#### ***Old Spanish NHT***

The 525-kV transmission line would be approximately 3.0 miles from the nearest portion of the Old Spanish NHT. No other components of the Proposed Action would be visible from this NHT. Eastbound and WB recreationists' views in the FG and MG from Old Spanish NHT of the Proposed Action would be predominantly backdropped against mountainous terrain. The guyed lattice and monopole structures would be partially obstructed by other built features in the landscape. The portions of the Proposed Action visible in the FG and MG from the Old Spanish NHT would not attract attention within the visual setting because the GLWP 525-kV transmission line would not be discernible from the existing urban development and infrastructure associated with North Las Vegas.

#### ***California NHT***

Each of the three 345-kV transmission lines would intersect or parallel multiple portions of the California NHT including the Walker River, Carson River, and US 50 segments. Views from the Reno Segment of the California NHT would not be affected because this portion of the NHT is in an urban setting with restricted views of the Proposed Action.

Multiple transmission and distribution lines currently exist near the Walker River Segment of the California NHT north of Yerington in the Mason Valley and would either directly cross or be visible within the viewshed of the trail segment. For the Walker River Segment of the California NHT, EB and WB recreationists' views in the FG of the 345-kV transmission lines and Fort Churchill Substation would be predominantly backdropped against mountainous terrain and continuous. The portions of the Proposed Action visible in the FG from the Walker River Segment of the California NHT would not attract attention because of the presence of existing H-frame transmission lines and wood-pole distribution lines. In addition, the scale of the landforms in the setting would be more dominant than the proposed 345-kV transmission lines. In the MG, views of the GLWP components would be more intermittent and would not attract attention because they would not be discernible against the mountainous backdrop.

For the Carson River Segment of the California NHT, EB and WB recreationists' views in the FG and MG of the 345-kV transmission lines would be predominantly backdropped against mountainous terrain and intermittently seen. Eastbound recreationists' views of the 345-kV transmission lines within the FG of the NHT would begin to attract attention and be visually subordinate within the visual setting. The 345-kV transmission lines would attract attention when they would cross and pass immediately overhead of the

NHT. The H-frame transmission lines would be visually subordinate within the visual setting after passing over the trail because of the dense riparian vegetation in the river corridor and the adjacent mountainous terrain which backdrops the views from the trail.

The visual setting would be noticeably altered because the Proposed Action would add a larger H-frame transmission line to the landscape where only one H-frame distribution line exists. The portions of the Proposed Action visible in the FG when traveling WB would not attract attention because the cottonwoods (both in summer and winter) would filter any views of the transmission line. Views in the MG of the California NHT of the Proposed Action would not be discernible in either travel direction because portions of the structures would be obstructed by landforms and vegetation and the 345-kV transmission lines would be backdropped.

For the US 50 Segment of the California NHT, EB and WB recreationists' views of the 345-kV transmission lines in the FG of the NHT would be equally skylined and backdropped against hilly and mountainous terrain. The portions of the Proposed Action visible in the FG from this segment of the California NHT would not attract attention, even when the transmission lines would pass overhead, because of the existing development associated with the communities of Dayton, Stagecoach, and Silver Springs including transmission lines and street lighting. The Proposed Action would not be seen in either travel direction from the MG of the US 50 Segment of the California NHT.

***Pony Express NHT***

The 345-kV transmission lines would intersect portions of the Pony Express NHT. No other Proposed Action components would be visible from the linear platform. Eastbound and WB recreationists' views in the FG and MG of the 345-kV transmission lines would be predominantly backdropped against mountainous terrain and intermittently seen. Eastbound recreationists' views of the Proposed Action within the FG of the NHT would begin to attract attention and be visually subordinate within the visual setting. The visual setting would appear noticeably altered because the Proposed Action would add a larger 345-kV H-frame transmission line to the landscape where only one H-frame distribution line exists. The portions of the Proposed Action visible in the FG when traveling WB would not attract attention because the cottonwoods (both in summer and winter) would filter any views of the transmission line. Views in the MG of the Pony Express NHT of the Proposed Action would not be discernible in either travel direction because portions of the structures would be obstructed by landforms and vegetation and the 345-kV transmission lines would be backdropped.

**Table 3-87. Proposed Action Impacts on Views from SVPs – Communities**

<b>Community SVP</b>	<b>Percent of SVP with Views in FG</b>	<b>Transmission Line Visible in FG (est. miles)</b>	<b>Percent of SVP with Views in MG</b>	<b>Transmission Line Visible in MG (est. miles)</b>	<b>Visibility Conditions</b>	<b>Setting Conditions<sup>a</sup></b>	<b>Change in Visual Setting</b>
Dayton	19	14.1	25	5.6	Backdropped	Substantially Developed	Relatively Unchanged
Indian Springs	87	14.5	5	4.1	Skylined	Substantially Developed	Relatively Unchanged
Luning	93	9.6	7	4.4	Backdropped	Partially Developed	Relatively Unchanged
Mina	100	8.3	-	3.8	Backdropped	Partially Developed	Relatively Unchanged
Silver Springs	5	6.2	11	2.1	Backdropped	Substantially Developed	Relatively Unchanged
Stagecoach	94	10.9	6	16.6	Skylined and Backdropped	Partially Developed	Noticeably Altered
Yerington	<1	2.8	7	2.4	Backdropped	Partially Developed	Relatively Unchanged

*Table Acronym(s):* Est. – Estimated; FG – Foreground; MG – Middleground; SVP – Sensitive Viewing Platform

*Table Note(s):* <sup>a</sup>Existing setting conditions categorizes the landscape as developed, substantially developed, partially developed, or undeveloped. Developed landscapes are considered to have landscapes with built features that dominate the setting’s elements and patterns. Substantially developed landscapes are considered to have built features that make up the predominant elements and patterns in the setting. Partially developed landscapes are considered to have some built features but the natural features in the landscape make up the predominant elements and patterns in the setting. Undeveloped landscapes have little to no built features and features’ elements and patterns in the landscape dominate the setting.

**Table 3-88. Proposed Action Impacts on Views from SVPs – SDAs**

<b>SDA SVP</b>	<b>Percent of SVP with Views in FG</b>	<b>Transmission Line Visible in FG (est. miles)</b>	<b>Percent of SVP with Views in MG</b>	<b>Transmission Line Visible in MG (est. miles)</b>	<b>Visibility Conditions</b>	<b>Setting Conditions<sup>a</sup></b>	<b>Change in Visual Setting</b>
Floyd Lamb Park at Tule Springs	99	7.5	-	4.1	Backdropped	Substantially Developed	Relatively Unchanged
Fort Churchill State Historic Park	11	2.7	21	1.1	Skylined and Backdropped	Undeveloped	Relatively Unchanged
Gabbs Valley Range WSA	-	-	1	4.7	Backdropped	Partially Developed	Relatively Unchanged
Ice Age Fossils State Park	99	6.9	-	4.0	Backdropped	Substantially Developed	Noticeably Altered
La Madre Mountain Wilderness Area	1	2.0	4	4.8	Backdropped	Substantially Developed	Relatively Unchanged
Mount Stirling WSA	-	-	8	7.2	Backdropped	Partially Developed	Relatively Unchanged
Red Rock Canyon NCA	15	24.9	9	4.4	Backdropped	Partially Developed	Relatively Unchanged
Spring Mountains NRA	-	-	94	9.8	Backdropped	Partially Developed	Relatively Unchanged

*Table Acronym(s):* Est. – Estimated; FG – Foreground; MG – Middleground; NCA – National Conservation Area; NRA – National Recreation Area; SDA – Special Designation Area; SVP – Sensitive Viewing Platform; WSA – Wilderness Study Area

*Table Note(s):* <sup>a</sup>Existing setting conditions categorizes the landscape as developed, substantially developed, partially developed, or undeveloped. Developed landscapes are considered to have landscapes with built features that dominate the setting’s elements and patterns. Substantially developed landscapes are considered to have built features that make up the predominant elements and patterns in the setting. Partially developed landscapes are considered to have some built features but the natural features in the landscape make up the predominant elements and patterns in the setting. Undeveloped landscapes have little to no built features and features’ elements and patterns in the landscape dominate the setting.



**Table 3-89. Proposed Action Impacts on Views from California, Old Spanish, and Pony Express NHTs**

NHT SVP	Transmission Line in FG of SVP (est. miles)	Visible Transmission Line in FG of SVP (est. miles)	Transmission Line in MG of SVP (est. miles)	Visible Transmission Line in MG of SVP (est. miles)	Duration of View of Transmission Line Seen from SVP (est. hours) <sup>a</sup>	Visibility Conditions	Existing Setting Conditions <sup>b</sup>	Change to Visual Setting
OLSP NHT EB	0.3	0.3	12.5	8.5	2.2	Backdropped	Substantially Developed	Relatively Unchanged
OLSP NHT WB	0.3	-	12.5	0.1	2.2	Backdropped	Substantially Developed	Relatively Unchanged
CALI NHT EB <sup>c</sup>	77.0	68.3	17.3	10.6	19.8	Backdropped	Partially Developed	Relatively Unchanged
CALI NHT WB <sup>c</sup>	77.0	63.8	17.3	9.5	17.0	Backdropped	Partially Developed	Relatively Unchanged
POEX NHT EB	29.2	23.5	13.8	6.0	5.4	Backdropped	Partially Developed	Relatively Unchanged
POEX NHT WB	29.2	20.8	13.8	6.0	5.0	Backdropped	Partially Developed	Relatively Unchanged

*Table Acronym(s):* CALI – California National Historic Trail; EB – Eastbound; Est. – Estimated; FG – Foreground; MG – Middleground; NHT – National Historic Trail; OLSP – Old Spanish National Historic Trail; POEX – Pony Express National Historic Trail; SVP – Sensitive Viewing Platform; WB – Westbound

*Table Note(s):* <sup>a</sup>The duration of travel is based on a rate of travel estimated at three mph.

<sup>b</sup>Existing setting conditions categorizes the landscape as developed, substantially developed, partially developed, or undeveloped. Developed landscapes are considered landscapes with built features that dominate the setting's elements and patterns. Substantially developed landscapes are considered to have built features that make up the predominant elements and patterns in the setting. Partially developed landscapes are considered to have some built features but the natural features in the landscape make up the predominant elements and patterns in the setting. Undeveloped landscapes have little to no built features and features' elements and patterns in the landscape dominate the setting.

<sup>c</sup>The approximately 360.3-acre Fort Churchill Substation expansion area would be within the MG and visible from the CA NHT in the EB and WB directions.

**Effects on Views from Sensitive Viewing Platforms – Native American Tribes**

Impacts from the Proposed Action to views from the four Native American communities’ SVPs would range from negligible to visually recognizable and beginning to attract attention. These impacts are summarized in Table 3-89. Photorealistic simulations of views of the Proposed Action from Las Vegas Paiute Reservation — Snow Mountain and Walker River Indian Reservation and simulations of the Proposed Action adjacent to the Timbisha Shoshone Reservation on US 95 are provided in Appendix P. Views of the Proposed Action would be approximately 4.5 miles away from the Moapa Indian Reservation, close to the limit of the MG. Due to the existing power generating and solar facilities along with multiple transmission lines, the Proposed Action would not be visually discernible from the Moapa Indian Reservation.

**Table 3-90. Proposed Action Impacts on Views from Las Vegas Paiute, Moapa Paiute, Timbisha Shoshone, and Walker River Paiute Tribal Communities**

Tribe SVP	Percent of SVP with Views in FG	Transmission Line Visible in FG (est. miles)	Percent of SVP with Views in MG	Transmission Line Visible in MG (est. miles)	Visibility Conditions	Setting Conditions <sup>a</sup>	Change in Visual Setting
Las Vegas Paiute Reservation — Snow Mountain	100	11.3	-	4.0	Predominantly Skylined	Partially Developed	Relatively Unchanged
Moapa Indian Reservation	-	-	<1	0.9	Backdropped	Substantially Developed	Relatively Unchanged
Timbisha Shoshone Reservation	100	9.5	-	4.1	Backdropped	Partially Developed	Noticeably Altered
Walker River Indian Reservation	10	32.7	5	13.0	Backdropped	Partially Developed	Relatively Unchanged

*Table Acronym(s):* Est. – Estimated; FG – Foreground; MG – Middleground; SVP – Sensitive viewing platform

*Table Note(s):* <sup>a</sup>Existing setting conditions categorizes the landscape as developed, substantially developed, partially developed, or undeveloped. Developed landscape are considered to have landscapes with built features that dominate the settings’ elements and patterns. Substantially developed landscapes are considered to have built features that make up the predominant elements and patterns in the setting. Partially developed landscapes are considered to have some built features but the natural features in the landscape make up the predominant elements and patterns in the setting. Undeveloped landscapes have little to no built features and features’ elements and patterns in the landscape dominate the setting.

**Additional Measures to Avoid and/or Minimize Impacts**

There are no additional measures recommended to avoid and/or minimize impacts from the Proposed Action to visual resources with the implementation of the EMMs (Appendix C. EMMs VIS-1 through VIS-14).

**3.15.4.4 Proposed Action Conformance with BLM VRM Objectives**

Within the permanent ROW area for the Proposed Action on BLM-administered lands, approximately 30 percent (3,095.5 acres) would occur on VRM Class III and approximately 37 percent (3,861.4 acres) would occur on VRM Class IV. Approximately 33 percent (3,421.8 acres) of the remaining permanent disturbance associated with the Proposed Action would occur on BLM-administered lands that are unclassified for VRM. Table 3-90 provides the results of the contrast rating evaluation (BLM 1986b) conducted for the Proposed Action from selected KOPs and the Proposed Action’s conformance with the established objectives. The contrast rating and environmental factors worksheets for each KOP assessing BLM-administered lands and the related photorealistic simulations are included in Appendix P.

**Table 3-91. BLM VRM Conformance by KOP for the Proposed Action**

KOP	VRM Class	Visible Permanent ROW Area (est. acres)	Contrast Rating	Conformance
CC 215	III	305.2	Weak	Meets
I-15	III	338.0	None	Meets
I-15	IV	25.9	None	Meets
SR 156	III	24.2 <sup>a</sup>	Strong	Does Not Meet
SR 156	III	177.1	Weak	Meets
SR 157	III	93.6	Weak	Meets
SR 160	III	24.3 <sup>a</sup>	Strong	Does Not Meet
SR 160	III	197.1	Moderate	Meets
SR 265	III	57.2	Strong	Does Not Meet
SR 265	III	28.2	Moderate	Meets
SR 265	IV	393.2	Moderate	Meets
SR 266	IV	205.7	Moderate	Meets
SR 267	IV	179.7	Moderate	Meets
SR 373	III	24.5 <sup>a</sup>	Strong	Does Not Meet
SR 373	III	218.0	Weak to Moderate	Meets
SR 439	IV	0.6	None	Meets
SR 604	III	154.6	Weak	Meets
SR 604	IV	25.9	Weak	Meets
US 50	III	37.8	Weak	Meets
US 50	IV	102.9	Weak	Meets
US 6	III	67.0	Weak	Meets
US 6	IV	292.9	Strong	Meets
US 93	III	182.1	None	Meets
US 93	IV	25.9	None	Meets
US 95	III	1,410.5	Strong	Does Not Meet
US 95	III	767.0	Weak to Moderate	Meets
US 95	IV	1,714.1	Weak to Moderate	Meets
Ice Age Fossils State Park Visitor Center	III	188.4	Weak	Meets
Desert NWR Visitor Center	III	189.1	None	Meets
California NHT	III	72.7	Weak	Meets
California NHT	IV	108.8	Weak	Meets
Old Spanish NHT	III	113.4	None <sup>b</sup>	Meets
Pony Express NHT	III	72.7	Weak	Meets
Pony Express NHT	IV	108.2	Weak	Meets
<b>Total Est. Acres of Conformance</b>	<b>III</b>	<b>7,818.3<sup>c</sup></b>	<b>N/A</b>	<b>N/A</b>
<b>Total Est. Acres of Conformance</b>	<b>IV</b>	<b>7,283.3<sup>c</sup></b>	<b>N/A</b>	<b>N/A</b>
<b>Total Est. Acres of Nonconformance</b>	<b>III</b>	<b>1,467.7</b>	<b>N/A</b>	<b>N/A</b>

*Table Acronym(s):* BLM – Bureau of Land Management; CC – Clark County; Est. – Estimated; I – Interstate; KOP – Key Observation Point; N/A – Not applicable;

NHT – National Historic Trail; NWR – National Wildlife Refuge; ROW – Right-of-way; SR – State Route; US – United States; VRM – Visual Resource Management

*Table Note(s):* <sup>a</sup>Acres of VRM III nonconformance associated with SR 156, SR 160, and SR 373 are also included for in the US 95 acreage of VRM III nonconformance due to the nonconforming GLWP components being visible from US 95 and each other respective highway. These acreages are not duplicated in the total acres of nonconformance.

<sup>b</sup>Desktop analysis only due to inaccessibility during field analysis for the portion of the Old Spanish NHT in the analysis area that would have views of the Proposed Action.

<sup>c</sup>Total acres of conformance includes acres listed for each KOP. Multiple KOPs have overlapping areas of visible permanent ROW and those acres for each KOP are included in the total conformance acres.

Based on the results of the Contrast Rating Form evaluation per BLM Manual 8431 (BLM 1986b), the Proposed Action would range from no contrast to strong contrast in VRM Class III and VRM Class IV areas, depending on which KOP it would be viewed from and the distance from the Proposed Action (Table 3-90). The Proposed Action would demand attention and create strong contrast within the immediate FG area of the US 95, SR 156, SR 160, SR 265, and SR 373 KOPs and within the FG of the US 95 KOP near AS-2 (Proposed Action). As a result, the Proposed Action from these KOPs would not be in conformance with the VRM Class III management objectives (Figure 3-36, Figure 3-37, and Figure 3-38). Because the Proposed Action would not meet the VRM Class III management objectives as allocated in the Las Vegas RMP, a land use plan amendment would be required (refer to Chapter 4).

The Proposed Action would meet VRM Class III and Class IV management objectives from all other selected KOPs. Four KOPs (Walker Lake SRMA Sand Dune Point Day Use Area, I-580, SR 426, and SR 431) would have views of the Proposed Action where it would not be located on BLM-administered lands. Therefore, conformance with VRM objectives is not applicable. In addition, four KOPs (SR 361, US 95A, Buckland Station, and Fort Churchill State Historic Park) would have views of the Proposed Action but the portions on BLM-administered lands would not be visible or are unclassified for VRM. Therefore, conformance with VRM objectives is either not relevant or was not made. The remaining community, SDA, and Tribal SVPs do not have specific viewpoint KOPs and, instead, were analyzed in terms of the views from the entire area it encompasses. As such, conformance with VRM objectives was not determined for these areas.

#### **3.15.4.5 Direct and Indirect Impacts from Losee Transmission Line Route Group**

##### **Construction, Operations and Maintenance, and Decommissioning**

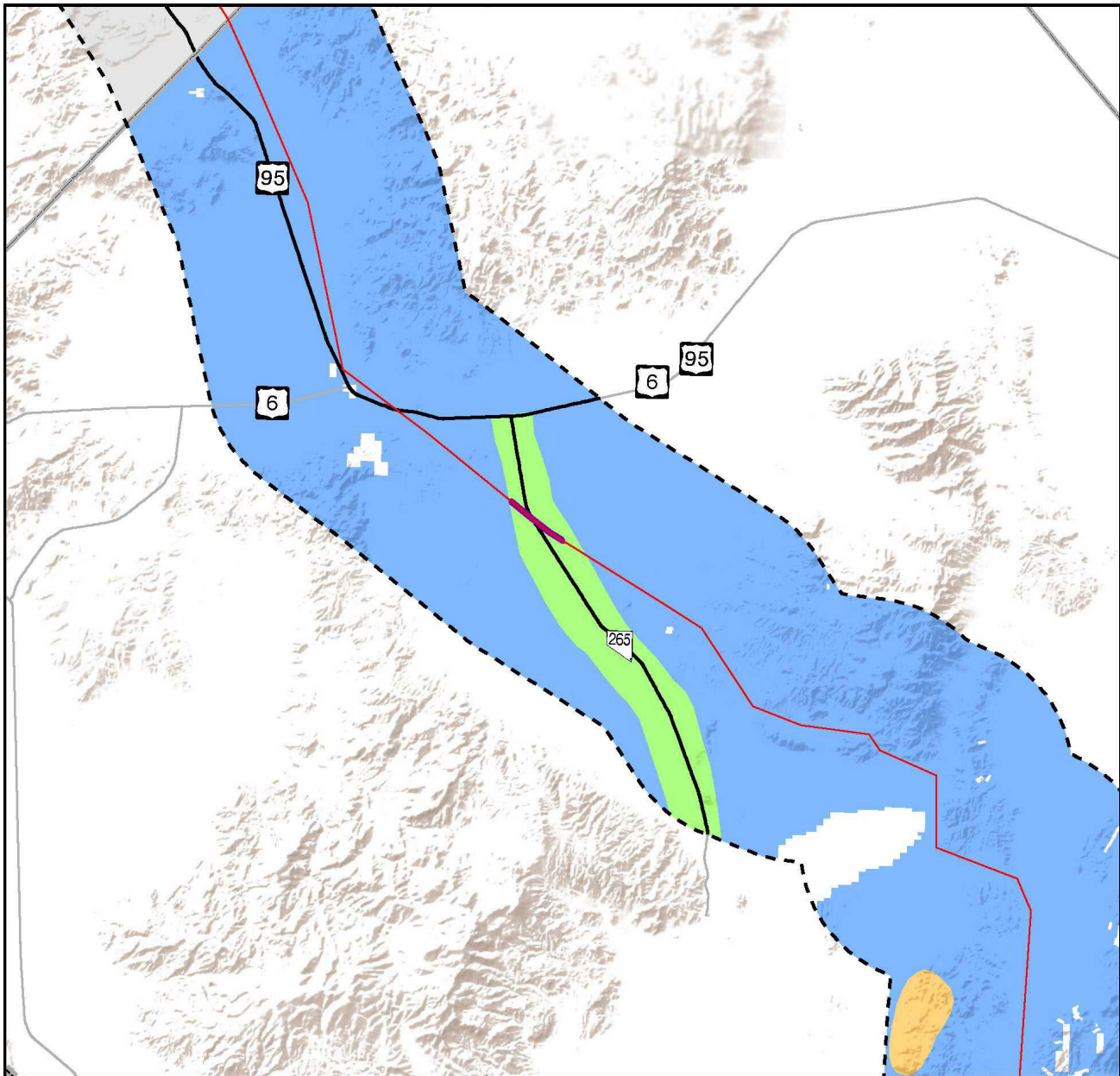
The Losee Transmission Alternative A would have similar effects on the resource the as the Proposed Action during construction and decommissioning activities.

##### **Landscape Character and Scenic Quality**

The Losee Transmission Alternative A and the Proposed Action would cross through the Las Vegas Valley (SNDO-017) VAU. The components of these Action Alternatives would be common features in the landscape because of the urban setting with existing transmission lines and variety of vertical forms, such as buildings and overhead traffic and lighting structures. There would be no apparent change in the characteristic landscape or scenic quality with either transmission line alternative. The Losee Transmission Alternative A permanent ROW area would include approximately 97.8 acres of Class C landscapes compared to approximately 99.4 acres of Class C landscapes for the Proposed Action. The Losee Transmission Alternative A and the Proposed Action during O&M would have similar, negligible changes to landscape character and scenic quality within the visual resource analysis area.

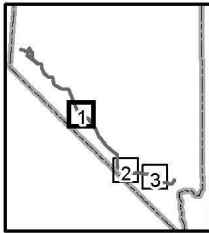
##### **Effects on Views from Sensitive Viewing Platforms – Highways**

Under the Losee Transmission Alternative A, highway SVPs that could have views of the alternative include I-15 and CC 215. There would be approximately 23.2 miles of I-15 and approximately 17.4 miles of CC 215 that would have views of this alternative within the visual resource analysis area. From I-15 traveling NB and SB, motorists would see approximately 3.6 miles and approximately 3.3 miles, respectively, of the Losee Transmission Alternative A, compared to approximately 3.1 miles and approximately 2.4 miles, respectively, of the Proposed Action. Motorists traveling along the interstate would have views of the Losee Transmission Alternative A for a total (combined travel direction) of approximately nine minutes



**Legend**

- |  |   |
|--|---|
| Proposed Action Transmission Line            | Visual Resource Management (VRM) Class II |
| Proposed Action VRM III Nonconformance Area  | VRM Class III                             |
| Linear KOPs Crossing VRM Nonconformance Area | VRM Class IV                              |
| Visual Resource Impact Analysis Area         | Unclassified                              |



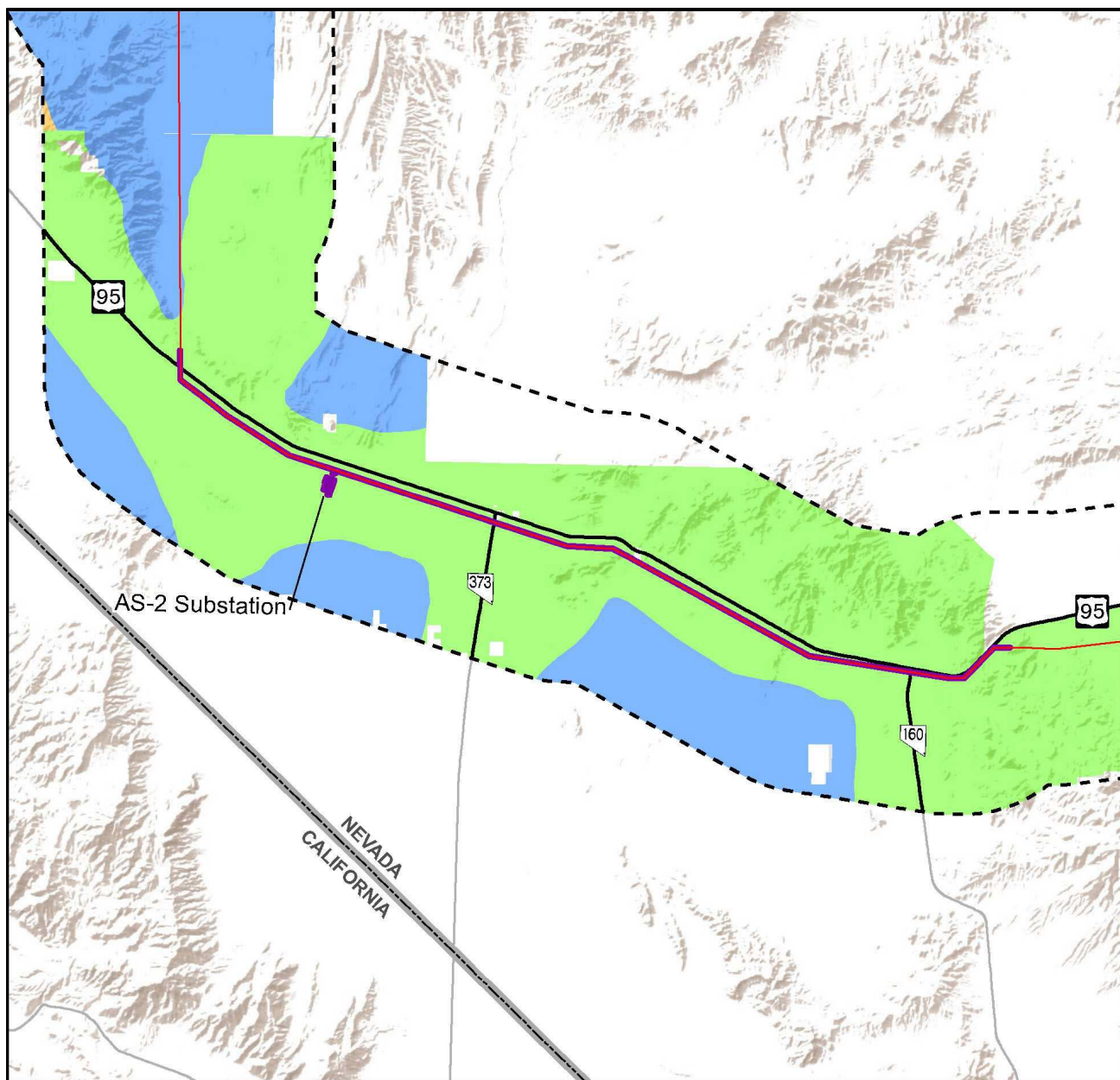
Scale: 1:400,000  

 0 1 2 3 4 mi

No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

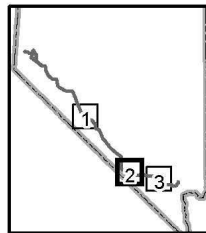
Note: VRM nonconformance areas enlarged for display purposes.

**Figure 3-36. GLWP VRM Class III Nonconformance within the Visual Resource Analysis Area (1 of 3)**

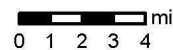


**Legend**

- |  |   |
|--|---|
| Proposed Action Transmission Line            | Visual Resource Management (VRM) Class II |
| Proposed Action VRM III Nonconformance Area  | VRM Class III                             |
| Linear KOPs Crossing VRM Nonconformance Area | VRM Class IV                              |
| Visual Resource Impact Analysis Area         | Unclassified                              |



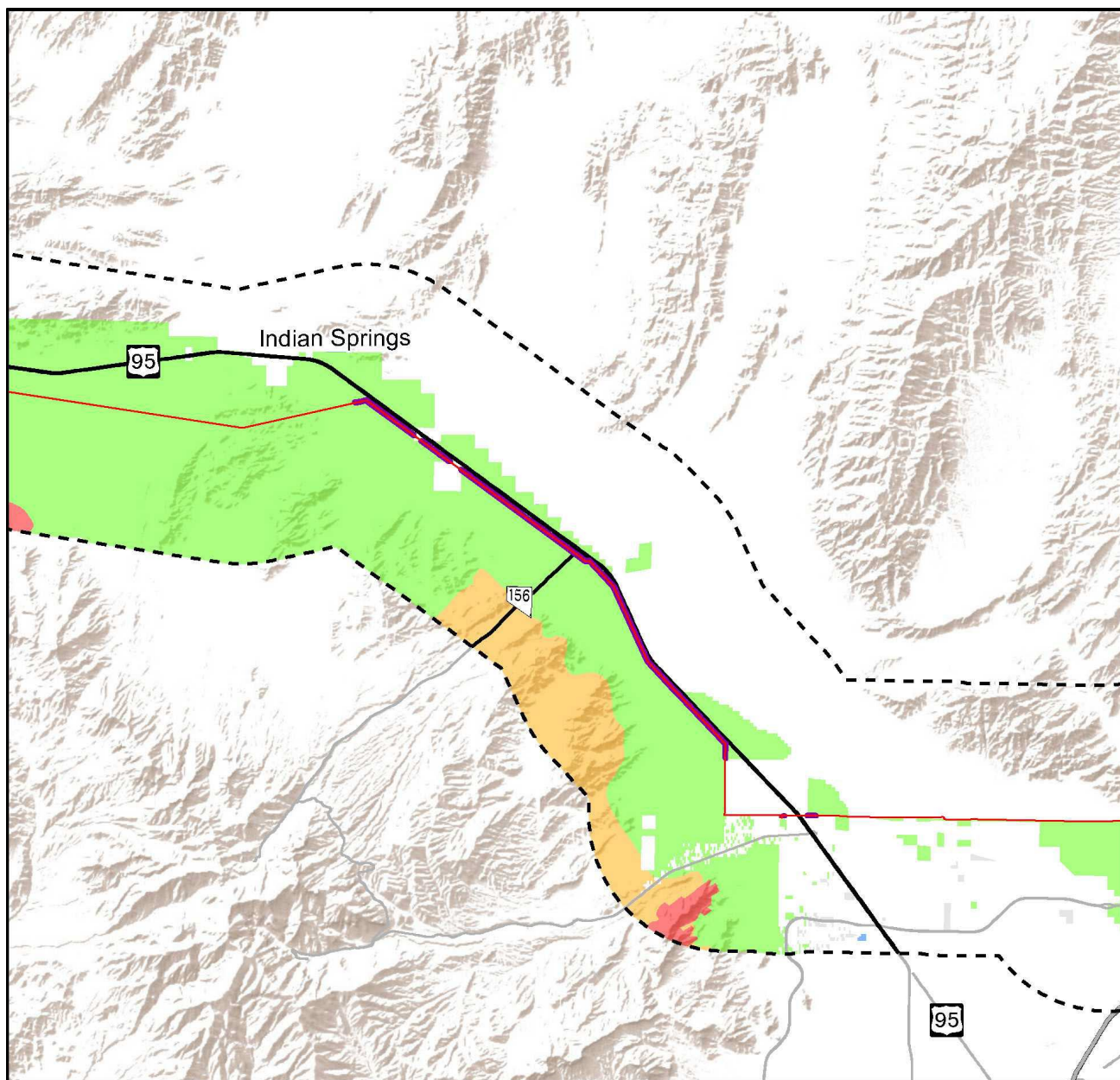
Scale: 1:400,000



No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

Note: VRM nonconformance areas enlarged for display purposes.

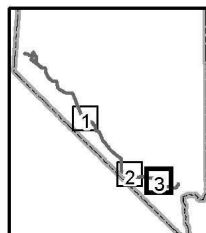
**Figure 3-37. GLWP VRM Class III Nonconformance within the Visual Resource Analysis Area (2 of 3)**



**Legend**

- |  |  |
|--|--|
| Proposed Action Transmission Line            | Visual Resource Management (VRM) Class I |
| Proposed Action VRM III Nonconformance Area  | VRM Class II                             |
| Linear KOPs Crossing VRM Nonconformance Area | VRM Class III                            |
| Visual Resource Impact Analysis Area         | VRM Class IV                             |
|  | Unclassified                             |

Note: VRM nonconformance areas enlarged for display purposes.



Scale: 1:400,000



No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure 3-38. GLWP VRM Class III Nonconformance within the Visual Resource Analysis Area (3 of 3)**

compared to approximately seven minutes for the Proposed Action. Traveling EB and WB on CC 215, motorists would have views of the Losee Transmission Alternative for a total of approximately 4.0 miles, compared to approximately 4.1 miles also in both travel directions for the Proposed Action. Motorists traveling along CC 215 would have views of the Losee Transmission Alternative A for a total (combined travel direction) of approximately nine minutes, compared to approximately nine minutes for the Proposed Action.

When compared to the Proposed Action, there would very little difference (approximately two minutes) in the duration of views of the Losee Transmission Alternative A from I-15 or CC 215. Views of the Losee Transmission Alternative A and the Proposed Action would be intermittent because of the urbanized setting and would not attract attention from motorists traveling along I-15 and CC 215.

#### **Effects on Views from Sensitive Viewing Platforms – Special Designation Areas**

##### ***Ice Age Fossils State Park SVP***

The Losee Transmission Alternative A and the Proposed Action would only be located in the MG of the Ice Age Fossils State Park. The Losee Transmission Alternative A would be visible from approximately 79 percent (254.6 acres) of the Ice Age Fossils State Park, as compared to the Proposed Action, which would be visible from approximately 48 percent (154.4 acres) of the state park. Approximately 2.8 miles of the Losee Transmission Alternative A would be visible from this SVP compared to approximately 0.9 miles of the Proposed Action. The Losee Transmission Alternative A and the Proposed Action would be discernible but would not attract the attention of the casual observer because of the distance to the 525-kV transmission line, urban setting, and the presence of other transmission lines in the state park's viewshed.

##### ***TUSK SVP***

The Losee Transmission Alternative A and the Proposed Action would be visible in both the FG and MG of the TUSK. The Losee Transmission Alternative A would be visible from approximately 6 percent (1,384.0 acres) of the FG of the TUSK and approximately 8 percent (1,720.5 acre) of the MG. The Proposed Action would be visible from approximately 5 percent (1,022.8.0 acres) of the FG of the TUSK and approximately 9 percent (1,939.9 acres) of the MG. Approximately 4.1 miles of both the Losee Transmission Alternative A and the Proposed Action would be seen by TUSK visitors. The Losee Transmission Alternative A and the Proposed Action would be recognizable but would not attract the attention of the casual observer because of the distance to the 525-kV transmission line, urban setting, and the presence of other transmission lines and built features in the TUSK viewshed.

#### **Losee Transmission Line Route Group Conformance with BLM VRM Objectives**

The BLM-administered lands associated with the Losee Transmission Alternative A and the Proposed Action that would be visible from I-15, CC 215, Ice Age Fossils State Park, and TUSK are managed as VRM Class III. Neither Action Alternative would attract attention and the magnitude of the contrast in terms of line, form, color, and texture and the duration of views created by these Action Alternatives would be weak. Therefore, both the Losee Transmission Alternative A and the comparable portion of the Proposed Action would be in conformance with the VRM Class III designated landscape.

#### **3.15.4.6 Direct and Indirect Impacts from TUSK Transmission Line Route Group**

##### **Construction, Operations and Maintenance, and Decommissioning**

The TUSK Transmission Alternative B would have similar effects as the Proposed Action and the impacts common to all Action Alternatives during construction and decommissioning activities.



### **Landscape Character and Scenic Quality**

The TUSK Transmission Alternative B and the Proposed Action would cross through the Las Vegas Valley (SNDO-017) VAU, which has been inventoried as a Class C landscape. Both transmission line alternatives would be common features in the landscape because of the urban setting with existing transmission lines and variety of vertical forms, such as buildings and overhead traffic and lighting structures. The contrast of TUSK Transmission Alternative B would vary from weak to strong in form, line, and texture depending on the distance and backdrop conditions viewed within the TUSK SVP. Depending on the distance viewed, the guyed lattice structures would change the spatial characteristics of the views because of the form and texture that would disrupt the pattern of the existing transmission lines. The lattice structures would, however, become less apparent at increased distances due to the open lattice design of the form and the flat gray finish. Similar to the Proposed Action, the TUSK Transmission Alternative B during O&M would have subtle to notable changes to landscape character depending on the distance viewed, adjacent setting (urban or undeveloped) and negligible changes to scenic quality within the visual resource analysis area.

### **Effects on Views from Sensitive Viewing Platforms – Highways**

Under the TUSK Transmission Alternative B, highway SVPs that would have views of this alternative include US 95, SR 157, and CC 215. From US 95, SR 157, and CC 215, motorists would see approximately 1.5 miles of the TUSK Transmission Alternative B and the Proposed Action from each of the highways. Motorists traveling along US 95 would have views of the TUSK Transmission Alternative B and the Proposed Action for a total (combined travel direction) of approximately eight minutes. On SR 157, the motorists traveling along this highway would have views of the TUSK Transmission Alternative B and the Proposed Action for a total of approximately three minutes in the EB travel direction only. Motorists traveling along CC 215 would have MG views only of the TUSK Transmission Alternative B and the Proposed Action for a total (combined travel direction) of approximately four minutes. The urban development and existing infrastructure would however, screen views of both Action Alternatives from motorists traveling along US 95, SR 157, or CC 215. The TUSK Transmission Alternative B and the Proposed Action would not attract attention from motorists traveling along US 95, SR 157, and CC 215.

### **Effects on Views from Sensitive Viewing Platforms – Special Designation Areas**

Under the TUSK Transmission Alternative B, the SDA SVPs that would have views of the alternatives include Floyd Lamb Park at Tule Springs, Ice Age Fossils State Park, Red Rock Canyon NCA, and TUSK (refer to Table 3-87). The difference in the area seen associated with the TUSK Route Alternative B from these four SDAs, when compared to the Proposed Action, would vary depending on the distanced viewed and existing built features seen in the landscape. The TUSK Transmission Alternative B would alter the FG views from TUSK with the introduction of the guyed lattice structures and would be visually prominent. There would be negligible changes in the views from Floyd Lamb Park at Tule Springs, Ice Age Fossils State Park and Red Rock Canyon resulting from the TUSK Transmission Alternative B in the MG.

### **TUSK Transmission Line Route Group Conformance with BLM VRM Objectives**

There are no BLM-administered lands associated with the TUSK Transmission Alternative B, and, as such, conformance determinations with VRM objectives are not applicable.

#### **3.15.4.7 Direct and Indirect Impacts from Beatty Transmission Line Route Group**

### **Construction, Operations and Maintenance, and Decommissioning**

The Beatty Transmission Line Route Group would have similar effects as the Proposed Action from the construction and decommissioning activities. The differences in impacts from O&M activities would be

limited in scope and geographic location based on the Beatty Transmission Alternative and are described below.

### **Landscape Character and Scenic Quality**

Beatty Transmission Alternatives A and the Proposed Action would cross through Crater Flat (BMDO-124 and SNDO-003), Bare Mountain (BMDO-121), Yucca Mountain Foothills (BMDO-123), Oasis Valley (BMDO-118), Sarcobatus Hills (BMDO-117), and Sarcobatus Flat (BMDO-115) VAUs. Beatty Transmission Alternative C would cross through Crater Flat, Bare Mountain, Yucca Mountain Foothills, Oasis Valley, and Sarcobatus Flat. Beatty Transmission Alternatives G and K would cross through Crater Flat, Bare Mountain, Yucca Mountain Foothills, Oasis Valley, Sarcobatus Hills, and Sarcobatus Flat. Beatty Transmission Alternative L would cross through Crater Flat, Yucca Mountain Foothills, Oasis Valley, Sarcobatus Hills, and Sarcobatus Flat. Impacts to landscape character in the Oasis Valley VAU from each of the five Beatty transmission alternatives create a change that would attract attention and would introduce built features not currently found in the landscape. Beatty Transmission Alternatives A and C, and the Proposed Action would demand attention and introduce built features not currently found in the landscape in Crater Flat VAU. In Yucca Mountain Foothills VAU, each of the five Beatty Transmission Alternatives would create a change that would attract attention. Beatty Transmission Alternatives A, G, and K, and the Proposed Action would create a change that would begin to attract attention in the Sarcobatus Hills VAU. In the Sarcobatus Flat VAU, each of the five alternatives would result in similar changes and would begin to dominate the setting because there are few built features in these landscapes.

There are approximately 466.9 acres of scenic quality Class B landscapes for the Beatty Transmission Alternative A, approximately 515.0 acres for Beatty Transmission Alternative C, approximately 364.2 acres for Beatty Transmission Alternative G, approximately 447.6 acres for Beatty Transmission Alternative K, and approximately 489.7 acres for Beatty Transmission Alternative L as compared to approximately 474.3 acres of Class B landscapes for the Proposed Action that would be impacted within the permanent ROW areas. Because the landscape within the FG of these Action Alternatives would be altered with the introduction of the guyed lattice structures through the Crater Flat and Oasis Valley VAUs, the scenic quality Class B landscape ratings would be lowered.

Additionally, there are approximately 176.3 acres of scenic quality Class C landscapes that would be impacted within the permanent ROW area by the Beatty Transmission Alternative A, approximately 143.5 acres by the Beatty Transmission Alternative C, approximately 252.7 acres by the Beatty Transmission Alternative G, approximately 203.1 acres for the Beatty Transmission Alternative K, and approximately 178.3 acres by the Beatty Transmission Alternative L compared to approximately 166.9 acres of Class C landscapes impacted by the Proposed Action. The Beatty Transmission Alternatives A, C, G, K, and L and the Proposed Action during O&M would have similar changes in landscape character and scenic quality in the FG and MG of the GLWP 525-kV transmission lines.

### **Effects on Views from Sensitive Viewing Platforms – Highways**

For the Beatty Transmission Alternatives, the US 95 would be the only highway SVP that would have views of these Action Alternatives. From US 95, under the Proposed Action, motorists would see approximately 4.6 miles of transmission line traveling NB and approximately 8.3 miles of the transmission line traveling SB. Motorists would see approximately 4.6 miles of the Beatty Transmission Alternative A traveling NB and approximately 8.6 miles of this alternative traveling SB. Motorists would see approximately 5.1 miles of the Beatty Transmission Alternative C traveling NB and approximately 7.5 miles traveling SB. Motorists would see approximately 9.8 miles of the Beatty Transmission Alternative G traveling NB and approximately 11.8 miles of this alternative traveling SB. Motorists would see approximately 6.7 miles of

the Beatty Transmission Alternative K traveling NB and approximately 12.3 miles of this alternative traveling SB. Motorists would see approximately 5.0 miles of the Beatty Transmission Alternative L traveling NB and approximately 9.1 miles of this alternative traveling SB.

Motorists traveling along US 95 would have FG views of the Proposed Action and Beatty Transmission Alternative A for a total (combined travel direction) of approximately 16 minutes and MG views for approximately 2 minutes. Comparatively, motorists would have views of Beatty Transmission Alternative C for approximately 10 minutes in the FG and approximately 6 minutes in the MG, Beatty Transmission Alternative G for approximately 24 minutes in the FG and approximately 4 minutes in the MG, Beatty Transmission Alternative K for approximately 17 minutes in the FG and approximately 6 minutes in the MG, and Beatty Transmission Alternative L for approximately 16 minutes in the FG and approximately 3 minutes in the MG. There would be very little difference in how much of the Beatty Transmission Alternatives A and C that motorists would see from US 95 compared to the Proposed Action. Under the Beatty Transmission Alternative G, the difference in the duration of views of the 525-kV transmission line from US 95 in the FG would be notably longer compared to the Proposed Action. Compared to the Proposed Action, duration of views along US 95 of the Beatty Transmission Alternative C would be noticeably shorter. Beatty Transmission Alternatives L and K would be predominantly similar in the duration of views of the 525-kV transmission line from US 95 in the FG.

#### **Effects on Views from Sensitive Viewing Platforms – Communities**

The Beatty Community SVP would be the only Community SVP to potentially have views of Beatty Transmission Alternatives A, C, G, K, and L. The Beatty Community SVP totals approximately 11,321.5 acres; approximately 9 percent (969.4 acres) of the SVP would have views of the Beatty Transmission Alternative A within the FG and approximately 7 percent (766.6 acres) of the SVP would have views within the MG. Of the approximately 11,321.5-acre SVP, approximately 1 percent (161.2 acres) and approximately 12 percent (1,311.7 acres) would have views of the Beatty Transmission Alternative C within the FG and MG of this SVP, respectively. The Beatty Transmission Alternative G would be visible in the FG from approximately 42 percent (4,759.3 acres) of the entire SVP and from approximately 13 percent (1,420.7 acres) in the MG. Approximately 21 percent (2,371.1 acres) and approximately 17 percent (1,930.1 acres) would have views of the Beatty Transmission Alternative K within the FG and MG, respectively, of the entire Beatty Community SVP. Of the approximately 11,321.5-acre SVP, approximately 9 percent (993.2 acres) would have views of the Beatty Transmission Alternative L within the FG and approximately 8 percent (890.0 acres) within the MG of this SVP. This is compared to the Proposed Action where approximately 8 percent (938.1 acres) would have views of the transmission line within the FG and 7 percent (782.6 acres) within the MG of the entire Beatty Community SVP.

The portions of the Beatty Transmission Alternatives A and L and the Proposed Action visible within the FG of the Beatty Community SVP would vary from being visually recognizable to attracting attention because the 525-kV transmission line would introduce built features not common in the existing setting. Because the majority of views of Beatty Transmission Alternative C would be from the MG of the Beatty Community SVP, the effects on views would be less than Beatty Transmission Alternative A and the Proposed Action. Under the Beatty Transmission Alternative G, and to a lesser extent Beatty Transmission Alternative K, the effects on views in the FG of the Beatty SVP would be notably greater than the Proposed Action.

#### **Beatty Transmission Line Route Group Conformance with BLM VRM Objectives**

The BLM-administered lands associated with the Beatty Transmission Alternatives A, C, G, K, and L that would be visible from portions of the US 95 are managed as VRM Class IV. Beatty Transmission

Alternatives A, C, G, K, and L would attract attention depending on the distance viewed but would not dominate the view of the casual observer. The magnitude of the contrast in terms of line, form, color, and texture along with the consideration of the various environmental factors such as duration of views created by these transmission alternatives would range from weak to moderate contrast. Therefore, the Beatty Transmission Alternatives A, C, G, K, and L would be in conformance with the VRM Class IV designated landscape since the objective of this class provides for activities that may dominate the view and be a major focus of viewer attention.

#### **3.15.4.8 Direct and Indirect Impacts from Scotty's Junction Transmission Line Route Group**

##### **Construction, Operations and Maintenance, and Decommissioning**

The Scotty's Junction Transmission Alternatives A and B would have similar effects as the Proposed Action from construction and decommissioning activities. The differences in impacts from O&M activities would be limited in scope and geographic location based on the Scotty's Junction Transmission Alternatives.

##### **Landscape Character and Scenic Quality**

Scotty's Junction Transmission Alternatives A and B and the Proposed Action would cross through the Sarcobatus Flat (BMDO-115) VAU and a small portion of the Sarcobatus Hills (BMDO-117) VAU. Each of the Action Alternatives would create a change in the setting that would attract attention in the landscape character of the Sarcobatus Flat VAU in the FG because of the scale and form of the guyed lattice structures, relatively flat terrain, and scattered low-profile buildings clustered around the intersection of US 95/SR 267. The Scotty's Junction Transmission Alternatives A and B and the Proposed Action would create a change in the landscape that would begin to attract attention.

There are approximately 393.7 acres of Class C landscapes for Scotty's Junction Transmission Alternative A and approximately 360.0 acres of Class C landscapes for Scotty's Junction Transmission Alternative B, compared to approximately 366.8 acres of Class C landscapes for the Proposed Action. The scenic quality within the FG of the transmission line would be altered with the introduction of the guyed lattice structures through the Sarcobatus Flat VAU. The impact to scenic quality would be similar in the Sarcobatus Hills VAU between the Scotty's Junction Transmission Alternatives A and B and the Proposed Action.

##### **Effects on Views from Sensitive Viewing Platforms – Highways**

Under the Scotty's Junction Transmission Alternatives A and B, US 95 and SR 267 would be the only highway SVPs that would have views of the alternatives. From US 95, motorists would see approximately 16.2 miles of the Scotty's Junction Transmission Alternative A traveling in either direction and approximately 14.8 miles of the Scotty's Junction Transmission Alternative B, which would be essentially the same as the Proposed Action (approximately 15.1 miles). Traveling along US 95, motorists would have views of the Scotty's Junction Alternatives A and B, and the Proposed Action for a total (combined travel direction) of approximately 31 minutes in the FG and approximately 3 minutes in the MG. The duration of views along US 95 would be the same regardless of the transmission alternative because of the uninterrupted views in this relatively flat terrain landscape.

From SR 267, motorists would see approximately 9.9 miles of the Scotty's Junction Transmission Alternative A traveling EB and approximately 9.2 miles traveling WB, which would be essentially the same as the Proposed Action traveling EB (9.0 miles) and longer traveling WB (0.9 miles). Motorists would see approximately 8.7 miles of Scotty's Junction Transmission Alternative B when traveling EB and approximately 4.8 miles traveling WB compared to the Proposed Action (9.0 miles EB and 0.9 miles WB). Motorists traveling along SR 267 would have FG views of Scotty's Junction Transmission Alternative A for a

total (combined travel direction) of approximately 10 minutes in the FG and MG views in the NB travel direction of approximately 2 minutes compared to the Proposed Action, approximately 6 minutes in the FG and approximately 2 minutes in the MG. Motorists traveling along SR 267 would have FG views of Scotty's Junction Transmission Alternative B in the NB travel direction for approximately three minutes and MG views in the NB travel direction for approximately two minutes, similar to the Proposed Action of approximately three minutes in the FG and approximately two minutes in the MG.

The Scotty's Junction Transmission Alternatives A and B as well as the Proposed Action's effect on the FG views from US 95 would be a change from the existing setting because of the form and scale of the guyed lattice structures and because there are no other transmission lines in close proximity to US 95 and SR 267.

#### **Effects on Views from Sensitive Viewing Platforms – Special Designated Areas**

The Grapevine Mountains WSA SVP totals approximately 45,444.9 acres of which the Scotty's Junction Transmission Alternative A would be visible in the MG from approximately 4 percent (1,646.1 acres) of this SDA SVP. There would be no views from this SVP of this alternative in the FG. A total of approximately 5.8 miles of this alternative's 525-kV transmission line would be seen from Grapevine Mountains WSA SVP and no other components would be visible. Due to the distance and backdrop of varied terrain, the Scotty's Junction Transmission Alternative A, viewed from the MG of the Grapevine Mountains WSA SVP, would not attract attention because it would not be readily discernible in the landscape. Scotty's Junction Transmission Alternative B and the Proposed Action would be more than six miles from this SVP and would not be visually discernible.

#### **Effects on Views from Sensitive Viewing Platforms – Native American Tribes**

Under the Scotty's Junction Transmission Alternatives A and B, the Timbisha Shoshone Reservation would be the only SVP Community that would have views of the alternatives in this portion of the visual resource analysis area. The entire Timbisha Shoshone Community SVP (approximately 3,021.9 acres) would have views within the FG of the Scotty's Junction Transmission Alternatives A and B and the Proposed Action. There would be no MG views of Scotty's Junction Transmission Alternatives A and B or the Proposed Action. The portions of the Scotty's Junction Transmission Alternatives A and B and the Proposed Action that would be visible within the FG of the Timbisha Shoshone Reservation SVP would attract attention, be visually prominent, and begin to dominate the visual setting.

The Timbisha Shoshone Community SVP would see approximately 10.4 miles of Scotty's Junction Transmission Alternative A in the FG and approximately 2.6 miles of the alternative in the MG. Approximately 9.2 miles in the FG and approximately 2.4 miles in the MG of Scotty's Junction Transmission Alternative B would be visible from within the Timbisha Shoshone Reservation. This would be similar to the Proposed Action with approximately 9.5 miles visible from the FG and approximately 2.4 miles in the MG. Because the majority of views of Scotty's Junction Transmission Alternatives A and B and the Proposed Action would be from the FG of the Timbisha Shoshone Reservation SVP, the effects on views would be a change from the existing setting.

#### **Scotty's Junction Transmission Line Route Group Conformance with BLM VRM Objectives**

The BLM-administered lands associated with the Scotty's Junction Transmission Alternatives A and B that would be visible from portions of the US 95 and SR 267 are managed as VRM Class IV. Scotty's Junction Transmission Alternatives A and B would attract attention depending on the distance viewed but would not dominate the view of the casual observer. The magnitude of the contrast in terms of line, form, color, and texture along with the consideration of the various environmental factors such as duration of views created by these transmission alternatives would range from weak to moderate contrast. Therefore, the

Scotty's Junction Transmission Alternatives A and C would be in conformance with the VRM IV designated landscape since the objective of this class provides for activities that may dominate the view and be a major focus of viewer attention.

#### **3.15.4.9 Direct and Indirect Impacts from Mason Valley WMA Transmission Line Route Group**

##### **Construction, Operations and Maintenance, and Decommissioning**

The Mason Valley WMA Transmission Alternative A would have similar effects as the Proposed Action from construction and decommissioning activities. The differences in impacts from O&M activities would be limited in scope and geographic location based on the Mason Valley WMA transmission alternative.

##### **Landscape Character and Scenic Quality**

The majority of the Mason Valley WMA Transmission Alternative A and the Proposed Action would cross through the Mason Valley (CCDO-037) VAU and only a small portion of these Action Alternatives would cross Parker Butte (CCDO-041) VAU. Both of the transmission line alternatives would create a change in the landscape character of the Mason Valley VAU in the FG that would begin to attract attention because of the scale and form of the guyed lattice structures. The existing rural development and Fort Churchill power generating station within the Mason Valley VAU would help to reduce the magnitude of the visual change in the characteristic landscape. The Mason Valley WMA Transmission Alternative A and the Proposed Action would not attract attention in the Parker Butte VAU.

There are approximately 170.1 acres of Class C landscapes for the Mason Valley WMA Transmission Alternative A, compared to approximately 118.4 acres of Class C landscapes for the Proposed Action. The scenic quality within the FG of the transmission line would be reduced with the introduction of the guyed lattice structures through the Mason Valley and Parker Butte VAUs.

##### **Effects on Views from Sensitive Viewing Platforms – Highways**

The US 95A would be the only highway SVP that would have views of Mason Valley WMA Alternative A and the Proposed Action. From US 95A, motorists would see approximately 4.8 miles of the Mason Valley WMA Transmission Alternative A traveling NB and SB, which would be more than the Proposed Action (approximately 2.9 miles traveling NB and SB). Motorists traveling along US 95A would have views of the Mason Valley WMA Transmission Alternative A for a total (combined travel direction) of approximately 6 minutes along the highway within the FG and approximately 4 minutes in the MG. The Mason Valley WMA Transmission Alternative A as well as the Proposed Action's effect on the FG views from US 95A would be a discernible visual change from the existing setting because of the form and scale of the guyed lattice structures. Because of the presence of other transmission lines and the existing power generating station in close proximity to US 95A, the Mason Valley WMA Transmission Alternative A and Proposed Action would not attract the attention of motorists.

##### **Effects on Views from Sensitive Viewing Platforms – Special Designation Areas**

The Mason Valley WMA SVP totals approximately 17,550.7 acres; the Mason Valley WMA Transmission Alternative A would be visible from approximately 14,700.8 acres (84 percent) of this SVP within the visual resource analysis area. Approximately 67 percent (9,916.1 acres) of the visible area would have views of the Mason Valley WMA Transmission Alternative A within the FG and approximately 33 percent (4,748.7 acres) would be visible in the MG of this SVP. The Proposed Action would be seen from approximately 86 percent (15,045.0 acres) of the entire Mason Valley WMA; approximately 71 percent (10,778.8 acres) would be within the FG and approximately 29 percent (4,266.2 acres) would be within the MG. Approximately 7.0 miles of the Mason Valley WMA Transmission Alternative A would be visible from

the FG of the WMA compared to approximately 4.9 miles of the Proposed Action would be visible from the FG. Neither the Mason Valley WMA Transmission Alternative A nor the Proposed Action would be visible from the MG of the Mason Valley WMA.

While minimizing direct disturbance within the WMA SVP, the Mason Valley WMA Transmission Alternative A would cross more undeveloped areas with fewer built features. The Proposed Action would parallel the existing railroad tracks, which is an existing linear feature in the landscape. The Mason Valley WMA Transmission Alternative A and the Proposed Action would attract attention and be visually prominent when viewed from the immediate FG of the WMA. However, from the remainder of the FG and from the MG of the WMA, views of the two transmission alternatives would be partially screened by the dense vegetation associated with the Carson River riparian corridor and the various sloughs of the WMA. Parker Butte would also provide a backdrop to reduce the contrast of these two Action Alternatives.

#### **Effects on Views from Sensitive Viewing Platforms – National Historic Trails**

From the California NHT, the casual observer would see approximately 1.6 miles of the Mason Valley WMA Transmission Alternative A in the MG only when traveling NB and SB, which would be slightly more than the Proposed Action (0.6 miles traveling NB and 0.4 miles traveling SB in the MG only). Recreationists walking along the California NHT would have views of the Mason Valley WMA Transmission Alternative A for a total (combined travel direction) of approximately two hours along the NHT within the MG; there would be no views of the transmission line from the FG of the NHT. The Proposed Action would be viewed for a duration of approximately the same time (approximately 6.7 miles along the NHT) and also from only the MG. The presence of the Mason Valley WMA Transmission Alternative A and Proposed Action within the MG views from the California NHT would be visually discernible and may attract attention in the existing setting that contains elements and patterns of a rural farming community.

#### **Effects on Views from Sensitive Viewing Platforms – Native American Tribes**

Under the Mason Valley WMA Transmission Alternative A, the Walker River Indian Reservation would have views of the Mason Valley WMA Transmission Alternative A and the Proposed Action in the visual resource analysis area. Approximately one percent of the 339,954.2-acre Reservation would have views of the Mason Valley WMA Transmission Alternative A (4,670.9 acres) and the Proposed Action (3,745.6 acres) within the FG. The portions of the Mason Valley WMA Transmission Alternative A along with the Proposed Action that would be visible within the FG of the Walker River Paiute Reservation SVP would begin to attract attention.

The Walker River Paiute Indian Community SVP would see approximately 6.3 miles of Mason Valley WMA Alternative A in the FG; the alternative would not be visible in the MG. This would be similar to the Proposed Action with approximately 4.9 miles visible from the FG and no visibility in the MG. Because the views of Mason Valley WMA Transmission Alternative A and the Proposed Action would be from the FG of the Walker River Indian Reservation SVP, the effects on views would be a recognizable change from the existing setting. The 525-kV transmission lines associated with these two Action Alternatives would be visually subordinate to other built and natural features in the landscape.

#### **Mason Valley WMA Transmission Line Route Group Conformance with BLM VRM Objectives**

The BLM-administered lands associated with the Mason Valley WMA Transmission Alternative A are unclassified for VRM and, as such, conformance determinations with VRM objectives are not applicable.

### 3.15.4.10 Direct and Indirect Impacts from Carson River Transmission Line Route Group

#### **Construction, Operations and Maintenance, and Decommissioning**

The Carson River Transmission Line Route Group would have similar effects as the Proposed Action from construction and decommissioning activities. The differences in impacts from O&M activities would be limited in scope and geographic location based on the selected alternative.

#### **Landscape Character and Scenic Quality**

The Carson River Transmission Alternatives A and C and the Proposed Action would cross through the Adrian Valley (CCDO-039), Carson Plains (CCDO-021), Churchill Butte (CCDO-022), Desert Mountains (CCDO-040), Mason Valley (CCDO-037), Mill Canyon (CCDO-027), and Pine Nut Mountains (CCDO-026) VAUs. In addition, the Carson River Transmission Alternative C would cross through the Singatse Range (CCDO-035) VAU. Each of the Carson River Transmission Alternatives would create a change that would begin to attract attention through Adrian Valley, Churchill Butte, Mason Valley, Mill Canyon, and Pine Nut Mountains VAUs. In the Carson Plains and Desert Mountains VAUs, Carson River Transmission Alternatives A and C and the Proposed Action would create a subtle change and would not attract attention. Carson River Transmission Alternative C would also create a subtle change and would not attract attention in the Singatse Range VAU.

There are approximately 490.1 acres of Class B landscapes and approximately 1,335.8 acres of Class C landscapes for the Carson River Transmission Alternative A and approximately 551.9 acres of Class B landscapes and approximately 1,383.8 acres of Class C landscapes for Carson River Transmission Alternative C. The Proposed Action would encompass approximately 391.0 acres of Class B landscapes and approximately 1,349.0 acres of Class C landscapes. The scenic quality of the landscape within the FG of the Carson River Transmission Alternatives A and C and the Proposed Action would be noticeably altered through the Adrian Valley, Churchill Butte, Mason Valley, Mill Canyon, and Pine Nut Mountains VAUs; the magnitude of the impact would be negligible in the MG. The magnitude of the change in scenic quality of the Carson Plains and Desert Mountains VAUs in the FG and MG would also be negligible. Additionally, the Carson River Transmission Alternative C would have a negligible impact to the scenic quality of the Singatse Range VAU in the FG and MG.

#### **Effects on Views from Sensitive Viewing Platforms – Highways**

Under the Carson River Transmission Alternative A and C, highway SVPs that would have views of the alternatives include US 50 and US 95A. Motorists on US 50 would see approximately 15.4 miles of the Carson River Transmission Alternative A traveling EB and approximately 16.9 miles traveling WB. US 50 motorists would see approximately 8.1 miles of the Carson River Transmission Alternative C traveling EB and approximately 13.7 miles traveling WB. From US 50 under the Proposed Action, motorists would see approximately 14.2 miles of transmission line traveling EB and approximately 12.5 miles of the transmission line traveling WB. Motorists traveling along US 50 would have views of the Carson River Transmission Alternative A for a total (combined travel direction) of approximately 25 minutes along the highway. Motorists traveling along US 50 would have views of the Carson River Transmission Alternative C for a total (combined travel direction) of approximately 27 minutes. The Proposed Action would be seen by US 50 motorists for a total (combined travel direction) of approximately 26 minutes.

From US 95A, under the Proposed Action, motorists would see approximately 37.0 miles of transmission line traveling NB and approximately 30.9 miles of the transmission line SB. US 95A motorists would see approximately 35.3 miles of the Carson River Transmission Alternative A traveling NB and approximately 30.8 miles of this alternative traveling SB. Motorists on US 95A would see approximately 25.2 miles of the



Carson River Transmission Alternative C traveling NB and approximately 23.3 miles of this alternative traveling SB. The Proposed Action would be seen by motorists traveling along US 95A for a total (combined travel direction) of approximately 16 minutes in the FG and 9 minutes in the MG. Motorists traveling along US 95A would have views of the Carson River Transmission Alternative A for a total (combined travel direction) of approximately 16 minutes along the highway in the FG and 5 minutes in the MG. Similar to the Proposed Action, motorists traveling along US 95A would have views of the Carson River Transmission Alternative C for a total (combined travel direction) of approximately 10 minutes along the highway in the FG and 12 minutes in the MG.

#### **Effects on Views from Sensitive Viewing Platforms – Communities**

Under the Carson River Transmission Alternative A, community SVPs that would have views of this transmission alternative include Dayton, Silver Springs, and Stagecoach.

##### ***Dayton Community SVP***

Approximately 19 percent (4,174.4 acres) would have views of the Carson River Transmission Alternative A within the FG and approximately 23 percent (5,029.6 acres) within the MG of the Dayton Community SVP. Approximately 10 percent (2,263.2 acres) would have views of the Carson River Transmission Alternative C within the FG and approximately 22 percent (4,838.3 acres) within the MG of the Dayton Community SVP. This is compared to the Proposed Action where approximately 19 percent (4,171.7 acres) would have views of the transmission line within the FG and approximately 24 percent (5,324.0 acres) within the MG of the Dayton Community SVP. These alternatives would not attract the attention of the casual observer because of the existing development associated with Dayton including overhead electrical lines.

Approximately 15.0 miles in the FG and approximately 3.2 miles in the MG of Carson River Transmission Alternative A would be visible from within the Dayton Community SVP. Approximately 11.9 miles in the FG and less than 0.1 miles in the MG of Carson River Transmission Alternative C would be visible from within the Dayton Community SVP. These Action Alternatives would be compared to approximately 14.0 miles in the FG and approximately 1.6 miles in the MG of the Proposed Action.

##### ***Silver Springs Community SVP***

Approximately 3 percent (1,649.5 acres) would have views of the Carson River Transmission Alternative A within the FG and approximately 2 percent (940.7 acres) within the MG of the Silver Springs Community SVP. Approximately 6 percent (3,002.7 acres) would have views of the Carson River Transmission Alternative C within the FG and approximately 10 percent (4,940.5 acres) within the MG of this SVP. This is compared to the Proposed Action where approximately 4 percent (1,799.5 acres) would have views of the transmission line within the FG and or approximately 5 percent (2,672.4 acres) within the MG of the Silver Springs Community SVP. The Carson River Transmission Alternatives A and C and the Proposed Action would not attract the attention of the casual observer because of the variety of structures and architectural styles and overhead electrical lines and street lighting present within the community of Silver Springs.

Approximately 2.6 miles in the FG and approximately 0.1 miles in the MG of Carson River Transmission Alternative A would be visible from within the Silver Springs Community SVP. Approximately 5.7 miles in the FG and approximately 2.0 miles in the MG of Carson River Transmission Alternative C would be visible from within the Silver Springs Community SVP. These Action Alternatives would be compared to approximately 2.6 miles in the FG and approximately 1.5 miles in the MG of the Proposed Action.

##### ***Stagecoach Community SVP***

Approximately 76 percent (4,054.3 acres) of the Stagecoach Community SVP would have views of the Carson River Transmission Alternative A within the FG and approximately 24 percent (1,274.2 acres) within

the MG. Approximately 69 percent (3,681.4 acres) would have views of the Carson River Transmission Alternative C within the FG and approximately 28 percent (1,481.0 acres) within the MG. This is compared to approximately 76 percent (4,062.1 acres) that would have views of the Proposed Action within the FG and approximately 24 percent (1,278.6 acres) within the MG of the Stagecoach Community SVP. Carson River Transmission Alternatives A and C and the Proposed Action would be visually discernible and would begin to attract the attention of the casual observer because of the more rural (sparser, low-density development) setting associated with the Stagecoach area.

Approximately 6.1 miles in the FG and approximately 6.8 miles in the MG of Carson River Transmission Alternative A would be visible from within the Stagecoach Community SVP. Approximately 3.2 miles in the FG and approximately 7.9 miles in the MG of Carson River Transmission Alternative C would be visible from within the Stagecoach Community SVP. These Action Alternatives would be compared to approximately 2.8 miles in the FG and approximately 6.6 miles in the MG of the Proposed Action.

The Carson River Transmission Alternatives A and C and Proposed Action would have similar effects and would not attract attention when viewed from the communities of Dayton and Silver Springs SVPs. Views from Stagecoach Community SVP of the three Action Alternatives would begin to attract attention when viewed in the FG.

#### **Effects on Views from Sensitive Viewing Platforms – Special Designation Areas**

The Fort Churchill State Historic Park SVP totals approximately 5,309.5 acres. Approximately 5 percent (283.4 acres) of this SVP would have views of the Carson River Transmission Alternative A in the MG only; there would be no FG views from the SVP for this alternative. Approximately 45 percent (2,367.5 acres) of this SVP would have views of the Carson River Transmission Alternative C including approximately 22 percent (1,169.2 acres) in the FG and approximately 23 percent (1,198.3 acres) in the MG. Under the Proposed Action, approximately 32 percent (1,721.3 acres) of the Fort Churchill State Historic Park would have views of the 345-kV transmission lines, including approximately 11 percent (603.4 acres) in the FG and approximately 21 percent (1,117.9 acres) in the MG.

Approximately 3.4 miles of the Carson River Transmission Alternative A would only be visible in the MG of the Fort Churchill State Historic Park; there would be no FG views of the transmission line of this alternative. Approximately 5.0 miles of the Carson River Transmission Alternative C would only be visible in the FG; there would be no MG views of the transmission lines of this alternative. Comparatively, approximately 2.7 miles of the Proposed Action would be visible in the FG of the Fort Churchill State Historic Park and approximately 1.1 miles in the MG.

Depending on the location within the SVP, the Carson River Transmission Alternatives A and C and the Proposed Action would range from the landscape appearing intact and not attracting attention to the landscape being noticeably altered and beginning to attract attention. The magnitude of impact would depend on the visibility of the 345-kV transmission lines, the distance that the lines would be viewed from, and the backdrop.

From the Fort Churchill State Historic Park SVP, a specific viewpoint was selected to evaluate impacts to the views from the visitor center. From the Fort Churchill State Historic Park Visitor Center Viewpoint, only the Carson River Transmission Alternative C and the Proposed Action would be visible; the Carson River Transmission Alternative A would not be seen. Approximately 1.5 miles of the Carson River Transmission Alternative C would be visible in the FG of the Fort Churchill State Historic Park Visitor Center Viewpoint and approximately 0.9 miles in the MG, as compared to approximately 1.2 miles of the Proposed Action that would only be visible in the MG.

The Carson River Transmission Alternatives A and C and the Proposed Action would not attract attention when viewed from Fort Churchill State Historic Park Visitor Center Viewpoint because of the distance that the 345-kV transmission line would be viewed from, the dense Carson River riparian corridor, the varied terrain found between the state park and the transmission line, and backdrop of ridges and mountainous landforms.

#### **Effects on Views from Sensitive Viewing Platforms – National Historic Trails**

Under the Carson River Transmission Alternatives A and C, NHT SVPs that would have views of these alternatives include the California NHT and the Pony Express NHT.

##### ***California NHT SVP***

For the four segments of California NHT, the casual observer would collectively see approximately 64.2 miles of the Carson River Transmission Alternative A traveling NB and approximately 66.8 miles traveling SB, which would be more than the Proposed Action (approximately 63.8 miles traveling NB and approximately 61.7 miles traveling SB). The casual observer would see approximately 56.1 miles of the Carson River Transmission Alternative C traveling NB and approximately 60.5 miles traveling SB, which would be less than the Proposed Action. Recreationists walking along the California NHT would have views of the Carson River Transmission Alternative A for a total (combined travel direction) of approximately 27 hours along the NHT. Views of the Carson River Transmission Alternative C and the Proposed Action along the NHT would be longer, for a total (combined travel direction) of approximately 32 hours. The presence of the Carson River Transmission Alternatives A and C and the Proposed Action within the FG from the California NHT would be visually discernible and may attract attention from the existing setting. Similar to the Proposed Action, the 345-kV transmission lines associated with the two Carson River Transmission Alternatives would attract attention when they would cross and pass immediately overhead of the NHT. Almost all of the Carson River Transmission Alternatives A and C would be further away from the Walker River Segment of the California NHT than the Proposed Action.

The Carson River Transmission Alternative C would cross perpendicular over the Walker River Segment at a consolidated location in northwestern Mason Valley. Both the Proposed Action and Carson River Transmission Alternative A would parallel (within the immediate FG) the NB/SB crossing of the Walker River Segment for a total of approximately 3.5 miles. In addition, the Proposed Action and Carson River Transmission Alternative A would span the NHT over a distance of approximately 0.8 miles. The Carson River Transmission Alternative C would reduce visual impacts in the landscape because this transmission alternative would have less spatial dominance over the Walker River Segment compared to the Proposed Action and Carson River Transmission Alternative A.

For the US 50 Segment of the California NHT, views of the Carson River Transmission Alternatives A and C in the FG of the NHT would be equally skylined and backdropped against hilly and mountainous terrain. The portions of the Carson River Transmission Alternatives A and C visible in the FG from this segment of the California NHT would not attract attention, even when the transmission lines would pass overhead, because of the existing development associated with the communities of Dayton, Stagecoach, and Silver Springs including transmission lines and street lighting. Similar to the Proposed Action, the two Carson River Transmission Alternatives would not be seen in either travel direction from the MG of the US 50 Segment of the California NHT.

##### ***Pony Express NHT SVP***

From the Pony Express NHT, the casual observer would see approximately 26.9 miles of the Carson River Transmission Alternative A traveling EB and approximately 26.8 miles traveling WB and approximately

25.3 miles of the Carson River Transmission Alternative C traveling EB and approximately 22.6 miles traveling WB, which would be more than the Proposed Action (24.7 miles traveling EB and 21.7 miles traveling WB). Recreationists walking along the Pony Express NHT would have views of the Carson River Transmission Alternative A for a total (combined travel direction) of approximately nine hours along the NHT. Views of the Carson River Transmission Alternative C and the Proposed Action along the NHT would be slightly longer, for a total (combined travel direction) of approximately 10 hours each. The presence of the Carson River Transmission Alternatives A and C within the FG the Pony Express NHT would be visually discernible and may attract attention from the existing setting. The Proposed Action would be seen less from the Pony Express NHT and for a shorter duration than the Carson River Transmission Alternatives A and C.

### **Carson River Transmission Line Route Group Conformance with BLM VRM Objectives**

The BLM-administered lands associated with the Carson River Transmission Alternatives A and C that would be visible from US 50, US 95A, Dayton, Stagecoach, Fort Churchill State Historic Park, California NHT, and Pony Express NHT KOPs are managed as VRM Class III and IV. Carson River Transmission Alternatives A and C would not attract attention and the magnitude of the contrast in terms of line, form, color, and texture along with the consideration of the various environmental factors such as duration of views created by these transmission alternatives would be weak. Therefore, Carson River Transmission Alternatives A and C would be in conformance with the VRM Class III and IV designated landscapes. Additionally, portions of the BLM-administered lands associated with the Carson River Transmission Alternatives A and Care unclassified for VRM and therefore, conformance determinations with VRM objectives are not applicable for these areas.

#### **3.15.4.11 Direct and Indirect Impacts from Amargosa Substation Group**

##### **Construction, Operations and Maintenance, and Decommissioning**

The two Amargosa Substation Alternatives, AS-1 and AS-2 (Proposed Action) would have similar effects during construction and decommissioning activities as the impacts described in the common to all Action Alternatives.

##### **Landscape Character and Scenic Quality**

Both of the AS Alternatives would be located on BLM-administered lands, less than 0.7 miles from US 95 within the Amargosa Desert VAU (SNDO-004). Both AS-1 and AS-2 (Proposed Action) would have similar effects on the existing landscape character because they would have the same footprint and components, such as perimeter fencing, on flat terrain with sparse vegetation. Both of the AS-1 and AS-2 (Proposed Action) would dominate the visual setting, demand attention, and appear to alter the landscape to the casual observer in the FG of the respective substation. Changes to the landscape character in the MG of either substation would begin to attract attention but be subordinate to the adjacent Funeral Mountain landforms.

Approximately 109 acres of Class C landscapes would be impacted by AS-1 and AS-2 (Proposed Action). Once constructed, both substations would introduce forms, lines, and textures that are not common in the setting and would demand attention, which would lower the scenic quality rating in the FG of AS-1 and AS-2 (Proposed Action).

##### **Effects on Views from Sensitive Viewing Platforms – Highways**

There would be views of AS-1 and AS-2 (Proposed Action) from US 95. For both alternatives, motorists would see the entire substation facility when traveling NB and SB on US 95. These substation alternatives

would be located less than 1 mile from the highway and as close as 0.3 miles. Motorists traveling along US 95 would have views of AS-1 for a total (combined travel direction) of approximately 5 minutes within the FG and a total (combined travel direction) of approximately two minutes in the MG. Similarly, US 95 motorists would have views of AS-2 (Proposed Action) for a total (combined travel direction) of approximately five minutes along the highway within the FG and for a total (combined travel direction) of approximately three minutes in the MG. The scale and industrial form of AS-1 or AS-2 (Proposed Action) would dominate the visual setting, demand attention, and create strong contrast with the introduction of new elements in the setting. The landscape would appear to be altered to the casual observer within approximately one mile of US 95 by either substation alternative.

#### **Effects on Views from Sensitive Viewing Platforms – Special Designation Areas**

Both of the Amargosa Substation Alternatives would be visible from Big Dune SRMA. Big Dune SRMA totals approximately 11,472.5 acres; approximately 27 percent (3,131.7 acres) of the entire SRMA would have views of AS-1 in the FG and approximately 23 percent (2,587.6 acres) would have views in the MG. Comparatively, AS-2 (Proposed Action) would be visible from approximately 5 percent (628.7 acres) of the 11,472.5-acre SRMA in the FG and approximately 50 percent (5,779.5 acres) in the MG. The scale and industrial form of AS-1 or AS-2 (Proposed Action) would attract attention and begin to dominate the visual setting with the introduction of new elements. The landscape would appear to be altered to the casual observer within the FG of Big Dune SRMA SVP by either substation alternative. However, AS-2 (Proposed Action) would have less visibility in the FG (no visibility within 1 mile) of the SRMA, which would attract less attention from the casual observer.

#### **Amargosa Substation Group Conformance with BLM VRM Objectives**

Based on the results of the Contrast Rating Form evaluation per BLM Manual 8431 (BLM 1986b), both the AS-1 and AS-2 (Proposed Action) would demand attention and create strong contrast within the FG area of the US 95 KOP. Therefore, neither AS-1 or AS-2 (Proposed Action) would be in conformance with the VRM Class III management objectives.

### **3.15.4.12 Direct and Indirect Impacts from Esmeralda Substation Group**

#### **Construction, Operations and Maintenance, and Decommissioning**

The three Esmeralda Substation Alternatives, ES-1, ES-2 (Proposed Action), and ES-3 would have similar effects as the impacts described in the common to all Action Alternatives.

#### **Landscape Character and Scenic Quality**

The ES-1 would be located within the Soda Spring Valley VAU (CCDO-075). Both ES-2 (Proposed Action) and ES-3 would be located within Big Smoky Valley South VAU (BMDO-087). Approximately 109 acres of Class C landscapes would be impacted by ES-1, ES-2 (Proposed Action), and ES-3. The three Esmeralda Substation Alternatives would have similar effects on the existing landscape character because they would have similar footprints and components, such as perimeter fencing, on flat terrain with sparse vegetation. Once constructed, the substation alternatives would introduce built features that are not common in the setting and the landscape would appear altered in the FG of the substations, which would reduce the scenic quality rating.

#### **Effects on Views from Sensitive Viewing Platforms – Highways**

There would be views of ES-1 from US 95 and ES-2 (Proposed Action) from US 6 (which is concurrent with US 95 northwest of Tonopah) and SR 265. Motorists would see the entire ES-1 substation facility when traveling NB and SB on US 95. Traveling along US 95, motorists would have views of the ES-1 for a total

(combined travel direction) of approximately four minutes within the FG and for approximately four minutes in the MG traveling SB only. Similarly, the entire ES-2 (Proposed Action) substation facility would be visible and seen for approximately four minutes in the FG and approximately one minute in the MG when traveling in either direction on US 6 and only in the NB travel direction when traveling on SR 265 for approximately three minutes in the FG and approximately one minute in the MG. US 6 motorists would have views within the immediate FG of ES-2 (Proposed Action) that would dominate the visual setting and the landscape would appear altered to the casual observer. ES-3 would be located over five miles from US 6 (outside of the MG) and would not be visually discernible in the landscape from the highways. Traveling along SR 265, motorists would have views of the ES-2 (Proposed Action) for a total (combined travel direction) of approximately three minutes within the FG and for approximately one minute in the MG traveling NB only. Motorists on SR 265 would have views of ES-3 for a total (combined travel direction) of approximately six minutes within the FG and for approximately two minutes in the MG.

From US 95, the scale and industrial form of ES-1 would begin to attract attention and would be subordinate within the visual setting with the introduction of new elements in the landscape. The ES-2 (Proposed Action) would dominate the visual setting, demand attention, and the landscape would appear to be altered to motorists from the FG of US 95. Motorists traveling SR 265 would have views within the immediate FG and the scale and industrial form of ES-3 would dominate the visual setting, demand attention, and create strong contrast with the introduction of these new elements in the setting.

#### **Esmeralda Substation Group Conformance with BLM VRM Objectives**

Based on the results of the Contrast Rating Form evaluation per BLM Manual 8431 (BLM 1986b), ES-3 would create strong contrast in VRM Class III. The ES-3 would demand attention and create strong contrast within the FG area of SR 265. Therefore, ES-3 would not be in conformance with the VRM Class III management objectives. The ES-2 (Proposed Action) would be located on lands managed as VRM Class IV and would be in conformance with the VRM Class IV objectives. The ES-1 would be located on lands that are unclassified for VRM within the CCDO and therefore, conformance determinations with VRM objectives are not applicable.

#### **3.15.4.13 Direct and Indirect Impacts from Amargosa Microwave Group**

##### **Construction, Operations and Maintenance, and Decommissioning**

The Amargosa Microwave Alternatives would be located approximately 15.4 miles from the Proposed Action 525-kV transmission line and outside of the visual resource analysis area. However, these microwave alternatives were evaluated as if they were within the visual resource analysis area. Both AM-1 and AM-2 (Proposed Action) would have similar effects as the impacts described in the common to all Action Alternatives.

##### **Landscape Character and Scenic Quality**

AM-1 would be located on approximately 2.3 acres of private land on the east side of SR 373 in the unincorporated community of Amargosa Valley near the California-Nevada state line. AM-2 (Proposed Action) would be located on approximately 2.3 acres of BLM-administered lands on the west side of SR 373 near the community of Amargosa Valley. Both microwave alternatives would have similar effects on the existing landscape character because they would have the same footprint and components, such as perimeter fencing, on flat terrain with sparse vegetation. Once constructed, both microwave sites would introduce forms and textures that exist but are not common in the setting and would begin to attract

attention which would lower the scenic quality. Approximately 2.3 acres of Class C landscapes would be impacted by AM-1 and AM-2 (Proposed Action).

#### **Effects on Views**

There would be views of AM-1 and AM-2 (Proposed Action) from SR 373. For both alternatives, motorists would see the entire microwave facility, when traveling NB and SB on SR 373. Motorists traveling along SR 373 would have views of the AM-1 and AM-2 (Proposed Action) for a total (combined travel direction) of approximately two minutes, in the FG and for a total (SB direction only) of approximately one minute in the MG. These numbers reflect that the SR 373 platform begins at the California-Nevada border, approximately 0.5 miles south of the AM-1 and AM-2 (Proposed Action). As such, the NB views are limited to this short distance and most of the views of the alternatives are in the SB travel direction. The AM-1 and AM-2 (Proposed Action) would begin to attract attention within the visual setting and the landscape would appear to be altered to the casual observer within the FG of SR 373.

There would be views of AM-1 and AM-2 (Proposed Action) from the Longstreet Inn and Casino entrance viewpoint. For both alternatives, visitors would see the entire microwave facility in the immediate FG from the viewpoint, looking to the north/northeast. The AM-1 and AM-2 (Proposed Action) would begin to attract attention within the visual setting and the landscape would appear to be altered to the casual observer within the FG of the Longstreet Inn and Casino entrance viewpoint.

#### **Amargosa Radio Microwave Group Conformance with BLM VRM Objectives**

The BLM-administered lands that would be visible from this portion of SR 373 are managed as VRM Class III. The AM-2 (Proposed Action) alternative would attract attention, depending on the distance viewed, but would not dominate the view of the casual observer at any distance. Therefore, AM-2 (Proposed Action) would be in conformance with the VRM Class III designated landscape since the objective of this class provides for activities that partially retain the existing character of the landscape and attract attention. The AM-1 alternative is located on private lands and conformance with BLM VRM objectives do not apply.

#### **3.15.4.14 Impacts from Anti-Perching/Nesting Mitigation Measure**

The majority of the 525-kV transmission line associated with the Proposed Action would use guyed lattice structures rather than tubular H-frame or monopole structures. The use of the tubular H-frame structures for the anti-perching/nesting mitigation measure in areas compared to guyed lattice structures is analyzed in this section for the impacts to visual resources within the visual resource analysis area. The average span between the 150-foot-tall 525-kV guyed lattice structures would be approximately 1,520 feet as compared to approximately 1,140 feet between the 180-foot-tall 525-kV H-frame structures incorporated for the mitigation measure. This would result in approximately 760 H-frame structures under the anti-perching/nesting mitigation measure areas, whereas there would be approximately 570 lattice structures in the same areas as the Proposed Action.

#### **Construction, Operations and Maintenance, and Decommissioning**

The tubular H-frame structures would have effects similar to the visual resource impacts common to all Action Alternatives during construction and decommissioning activities.

#### **Landscape Character and Scenic Quality**

The tubular H-frame structures would cross through 18 different VAUs within Mojave desert tortoise recovery units: 8 Valley/Basin, 5 Mountain/Range, 3 Foothills, and 2 Salt Flat/Dry Lake VAU categories. For the Bi-State sage-grouse mitigation area, the tubular H-frame structures would cross the Black Mountains

(CCDO-053) and Paiute Spring VAUs (CCDO-050), which are both in the Mountain/Range Category. Where the alignment of the 525-kV H-frame transmission line would be within a corridor of existing H-frame transmission lines, the proposed H-frame structures would repeat a pattern and form common in the landscape. However, the 525-kV H-frames would be taller than the existing H-frames and would attract attention in some landscapes. The 525-kV H-frame structures would result in changes in the setting that would be visually prominent and modify the characteristic landscape, particularly in settings that are relatively flat to gently rolling with low vegetation predominately in the Valley/Basin and Salt Flat/Dry Lake VAU categories. Compared to the guyed lattice structures, the H-frame structures would begin to attract more attention in the visual setting due to the lack of existing built features, relatively flat terrain, and the greater number of taller structures.

The 525-kV H-frame structures would be placed in Class B and Class C landscapes; no Class A landscapes would be impacted by these structures. Similar to the guyed lattice structures, the H-frame structures would result in a reduction in scenic quality rating in the immediate FG of the transmission line. The characteristic landscapes, however, would be altered where the 525-kV H-frame structures are beyond the immediate FG and when skylined, the impact would extend to the MG. Compared to the guyed lattice structures, scenic quality ratings would be further reduced because there would be a greater number of taller H-frame structures and these tubular towers would not blend as well into the landscape and would attract attention.

#### **Effects on Views from Sensitive Viewing Platforms – Highways**

Where the tubular H-frame structures would replace the guyed lattice structures, there would be similar effects to the Proposed Action from 13 of the 20 highway SVPs because the 525-kV H-frame structures would not attract attention or would just begin to attract the attention of the casual observer (refer to Table 3-83 for a summary of the impacts created by the Proposed Action). The changes in views from the remaining six highway SVPs (SR 156, SR 157, SR 160, SR 266, SR 267, and US 95) within the visual resource analysis area where the H-frames would be constructed in place of the guyed lattice structures are discussed in detail below. The duration of the views from the highway SVPs associated with the construction and installation of 525-kV H-frame structures would be the same as the Proposed Action.

#### **SR 156**

Within the immediate FG of the transmission line crossing in either travel direction, both the H-frame and guyed lattice structures would demand attention and dominate the visual setting because of the contrast in form and scale. There would be no views of either type of structure in the SB direction after passing under the transmission line. Beyond the immediate FG, the H-frame structures would attract more attention than the guyed lattice structures when viewed by the NB motorists because the guyed lattice structures would begin to blend with the existing transmission and distribution lines and there would be a greater number of the H-frame structures. The SB motorists' views of both types of structures would only be in the immediate FG of the highway as the motorist turns onto SR 156 from US 95.

#### **SR 157**

Similar to the Proposed Action, EB and WB FG views and EB MG views from SR 157 of the H-frames would be predominantly backdropped against mountainous terrain, recognizable by motorists, and would begin to attract attention. The visual setting would change as a result of the H-frames compared to the Proposed Action because of the introduction of a greater number of structures, which would be taller and noticeably increase the magnitude of built features. There would be no views of the transmission line with either structure type in the WB direction in the MG of SR 157. The scenic quality rating of the adjacent landscape viewed from this portion of the scenic byway would be reduced because the 525-kV H-frames would



increase the magnitude of the built features in the setting. There would be no impact to the scenic byway designation as a result of the anti-perching/nesting mitigation measures.

#### ***SR 160, SR 265, and SR 266***

The 525-kV transmission line would cross SR 160 at approximately MP NY-37, SR 265 at approximately MP ES-16.5, and SR 266 at approximately MP ES-37.8. Within the immediate FG of the transmission line crossing in either travel direction, both the H-frame and guyed lattice structures would demand attention and dominate the visual setting because of the contrast in form and scale.

Similar to the Proposed Action within the FG from NB SR 160, NB and SB SR 265, and EB and WB SR 266, the 525-kV H-frame structures would attract attention, be visually prominent, and begin to dominate the visual setting primarily because the scale, form, and line of the H-frame structures are not common features in the relatively undeveloped viewshed. In the MG of the NB SR 160, NB and SB SR 265, and EB and WB SR 266, the portions of the H-frame structures visible would attract the attention of the casual observer because there would be a greater number of tubular structures and these structures would not blend in with the existing landscape from that distance compared to the guyed lattice structures.

The NB and SB motorists' views within the FG of SR 265 of either transmission structure type would be equally skylined and backdropped against mountainous terrain with unobstructed and predominantly head-on views. Both structure types visible in the FG from NB and SB SR 265 would demand attention and dominate the visual setting because the transmission structure components would change the landscape due to the introduction of built features not currently found in the setting and a scale that would dominate the attention of the casual observer. In the MG, SR 265 NB motorists' views of the H-frame structures would be predominantly skylined with unobstructed views from the highways and seen predominantly head-on. The H-frame components that would be visible in the MG in the SB motorists' view from SR 265 would attract more attention than the Proposed Action because the tubular structures would not blend in with the existing landscape at that distance compared to the guyed lattice structures.

#### ***SR 267***

Eastbound motorists' views in the FG and MG on SR 267 of the 525-kV transmission lines would be backdropped against mountainous terrain, predominantly seen head-on, and visible for approximately 4.5 minutes. The portions of the Proposed Action or H-frame structures that would be visible from EB SR 267 in the FG would similarly begin to attract attention because neither of these built structures are common in the landscape. In the MG, the portions of the Proposed Action visible from EB and WB SR 267 would not attract attention because the guyed lattice structures would begin to blend in with the existing landscape, whereas the H-frame would attract attention due to greater contrast of the tubular form in the landscape. There would be no views of the transmission lines in the WB direction in the FG of SR 267.

#### ***US 95***

The 525-kV transmission line would cross US 95 seven times at approximately MP CL-93.1, MP NY-44.2, MP NY-76.0, MP NY-85.0, MP NY-96.4-, MP ES-20.0, and MP MI-74.2. Within the immediate FG from the crossing by either of the Proposed Action or H-frame structures in either travel direction, the transmission towers would demand attention and dominate the visual setting because of the contrast in form and scale of the structures compared to other elements and patterns in the landscape. In addition to the crossings, for approximately 28.4 miles the 525-kV transmission line would run generally parallel to the highway within the immediate FG. Both the guyed lattice and H-Frame transmission line structures would introduce elements/patterns that would be visually dominant and create strong contrast compared to other features in the landscape when viewed from the immediate FG of US 95 in either travel direction. Beyond the

immediate FG, but still within the FG of the US 95, NB and SB motorists' views of either structures would be both skylined and backdropped against mountainous terrain, depending on the location along the highway. The H-frame structures would attract more attention and result in a greater change in the views at these locations along US 95, because of the greater number of taller tubular structures compared to the guyed lattice structures. Views from the MG from US 95 of the 525-kV transmission line would be consistently backdropped against mountainous terrain and seen intermittently. The H-frame structures would be visually more discernible and attract more attention compared to the Proposed Action because the H-frame structures would not blend as well as the guyed lattice structures in the MG distance zone.

#### **Effects on Views from Sensitive Viewing Platforms – Communities**

The Proposed Action, at its nearest location, would be approximately 0.6 miles from the Beatty Community SVP. Views of the 525-kV transmission line would be predominantly backdropped against mountainous terrain and seen intermittently. Both the H-frame structures and the Proposed Action visible from the Beatty Community SVP within the immediate FG would attract attention, be visually prominent, and begin to dominate the visual setting because of the addition of the proposed transmission line in areas that currently have little to no built features. The H-frame structures would be more visually discernible and attract more attention of the casual observer compared to the Proposed Action because of their greater height and tubular form.

#### **Effects on Views from Sensitive Viewing Platforms – Special Designation Areas**

Views of the H-frame structures and the Proposed Action visible in the FG from the Atwood Preserve Overlook and Ponds viewpoints would attract attention, be visually prominent, and begin to dominate the visual setting. With either tower structure, the visual setting would appear to be altered because of the scale and form of the structures and their relatively close proximity (less than three miles) to these two viewpoints, even with the backdrop of the adjacent mountains.

#### **Effects on Views from Sensitive Viewing Platforms – National Historic Trails**

Eastbound and WB recreationists' views in the FG and MG from the Old Spanish NHT of the 525-kV transmission line would be predominantly backdropped against mountainous terrain and the structures would be partially obstructed by other built features in the landscape. Neither the H-frame or the guyed lattice structures visible in the FG and MG from the Old Spanish NHT would attract attention within the visual setting because the tower structures would not be discernible from the existing urban development and infrastructure associated with North Las Vegas.

#### **Effects on Views from Sensitive Viewing Platforms – Native American Tribes**

There would be similar impacts from the H-frame structures as the guyed lattice structures to the views from Las Vegas Paiute Indian Reservation — Snow Mountain. Changes to views from either tower structure would range from negligible to visually recognizable and beginning to attract attention.

#### **Anti-Perching/Nesting Mitigation Measure Conformance with BLM VRM Objectives**

The use of the H-frame and monopole structures in place of the guyed lattice structures in Mojave desert tortoise and Bi-State sage-grouse habitat would not change the BLM VRM conformance determinations of the Action Alternatives previously identified.

### 3.15.5 NPS TUSK Visual Impact Assessment

#### 3.15.5.1 TUSK Analysis Area

The analysis area for the TUSK visual resource inventory and impact assessment was defined as the area of visibility, on NPS-administered lands only, out to 5 miles from the GLWP transmission line centerline. This area occurs only on TUSK, corresponds to the boundary between the NPS's definition of FG (0 to 0.5 miles) and background (more than 3 miles) visual distance zones, and equates to approximately 36 square miles (22,986.4 acres).

#### 3.15.5.2 TUSK Viewpoints

Seven viewpoints were identified through coordination with NPS staff to assess the effect of the GLWP's construction, O&M, and decommissioning activities. The viewpoints selected within the TUSK are described below and depicted in Figure 3-39 (TUSK Visual Impact Assessment Viewpoints):

- Aliante/Horse (TUSK Viewpoint #7)<sup>13</sup> – View looking into TUSK at the Tule Springs Expedition National Register Site. This viewpoint is also a designated entrance to TUSK and hikers enter here to access the Aliante Trail.
- Durango/Moccasin (TUSK Viewpoint #12) – Viewpoint is considered to be a main entrance location with a parking lot. A monument sign may be placed near this location at the intersection of Durango Drive and Moccasin Road.
- Durango Trail (East) – Viewpoint is at the east end of the Durango Loop Trail.
- Durango Trail (North) – Viewpoint is at the north end of the Durango Loop Trail.
- Golden Triangle Trailhead (TUSK Viewpoints #22 and #23) – Viewpoint is at the future location of the Golden Triangle Trailhead near the entrance to TUSK from the future Golden Triangle residential development.
- Corn Creek Springs (TUSK Viewpoint #17) – Viewpoint is at the site planned for a trailhead/parking area.
- TUSK-Desert NWR Border – Viewpoint is at the border of TUSK and the Desert NWR at Corn Creek Road.

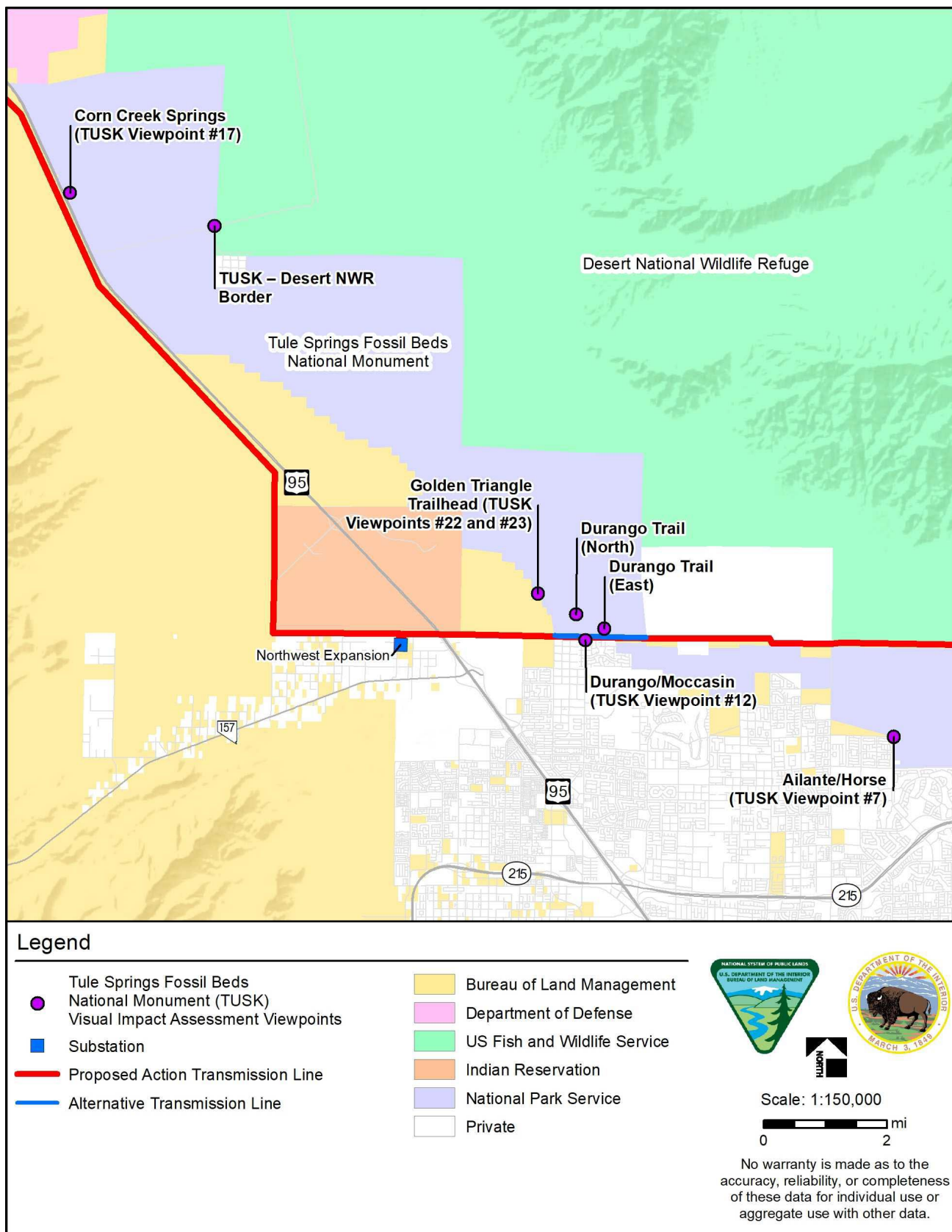
To support the analysis and depict the proposed changes within the view from each viewpoint, visual simulations were developed from the locations and are included in Appendix Q (NPS Visual Impact Assessment Information).

#### 3.15.5.3 Affected Environment

The TUSK is located within the Basin and Range physiographic province and largely contained within the upper Las Vegas Wash—a 13-mile northwest-southeast trending tributary of the Colorado River. The upper Las Vegas Wash is an active wash and the only drainage system in the Las Vegas hydrologic basin that drains stormwater and runoff from the Las Vegas Valley toward Lake Mead. The landscape is a highly eroded, badlands-type topography of mostly light-colored, fine-grained groundwater discharge deposits. It also contains various tributaries, but most of the land is made up of gravelly flats and groups of low mud

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<sup>13</sup> The TUSK viewpoint number is the preassigned number given to the viewpoint location as part of the inventory planning.



**Figure 3-39. TUSK Visual Impact Assessment Viewpoints**

hills. The TUSK is bounded to the northeast by the Sheep and Las Vegas mountain ranges and to the southwest by the Spring Mountains. The vegetation in the TUSK is predominately low, scattered shrubs primarily consisting of creosote bush, saltbush, and yucca. Within the boundaries of TUSK, the Pleistocene deposits contain extensive deposits of fossils of extinct Ice Age animals and plants. The presence of the high concentrations of paleontological resources in the upper Las Vegas Wash resulted in the designation of the TUSK (Port 2015).

The TUSK boundary is in a “bowtie” configuration, divided north and south units connected by a narrow central corridor. The north unit encompasses the Corn Creek Flat area and is surrounded mainly by Las Vegas Paiute Reservation – Snow Mountain and public lands administered by the BLM, DOD, and USFWS. The south unit includes the Gilcrease Flat area and is more of an urban interface. The viewshed in the south unit is an urban interface with North Las Vegas. In contrast, the viewshed in the north unit is largely intact with panoramic views of the distant Sheep and Spring mountain ranges.

### **Viewer Groups and Sensitivity**

Different viewer groups will vary in their sensitivity to changes in the viewshed. Currently, there are no existing facilities such as visitor centers, restrooms, or permanent trails established within the TUSK. The Aliante Loop Trail is a temporary 3.25-mile loop trail located in the south unit. The approximately 2.2-mile Durango Loop Trail is also a temporary trail in the south unit. A 62-space parking area and kiosk is located along Moccasin Road at the intersection with Durango Drive. There are numerous dirt roads throughout the TUSK that are remnants of roads used by the public prior to the designation of the Monument in 2014. The NPS provided the information in Table 3-91 based on their general knowledge of the existing TUSK visitors.

**Table 3-92. TUSK General User Groups, Sensitivity, Location, and Visitation Levels**

<b>User Group</b>	<b>Sensitivity</b>	<b>Locations</b>	<b>Visitation Levels</b>	<b>Use Duration</b>
Regular Visitors	High	Durango Loop trailhead Aliante Loop trailhead Adjacent residents to TUSK Equestrian community Future Golden Triangle trailhead	Generally high levels of visitation at viewpoints; often used as launch points.	Typically short at some viewpoints as they move to use trails. Sometimes moderate to long periods in the landscape and may be at multiple viewpoints along trails.
Casual Visitors	Medium	Durango Loop trailhead Aliante Loop trailhead Future Corn Creek Road MP CL-102 to MP CL-103 kiosk	Moderate to high levels of visitation that change over the year (lower in the hot summer).	Frequent park visitors often visit many viewpoints, but duration is typically short. Other occasional users such as mountain bikers do not stay at a viewpoint for long periods of time, but ride into the backcountry more often than some users.
Critical Observers	High	Backcountry areas where year-round birding and wildlife viewing occur Las Vegas Paiute Reservation — Snow Mountain (TUSK-wide) Corn Creek Road kiosk and Corn Creek Road to Desert NWR	Usually lower levels of visitors/users.	Short to moderate duration at specific viewpoints but spend extended periods of time in landscape.

*Table Acronym(s):* MP CL – Clark County Milepost; NWR – National Wildlife Refuge; TUSK – Tule Springs Fossil Beds National Monument  
*Table Source(s):* Personal communication Eichenberg and Meyer (2022)

Regular visitors are repeat local observers and include visitors with a considerable concern for changes in the landscape. Casual viewers expect to see a scenic landscape but often have little prior knowledge about the location and depend on and enjoy interpretation to gain information. Casual viewers include out-of-state visitors and sporadic Las Vegas residents. Critical observers have special knowledge that contributes to their interpretation of the view (e.g., photographers, bird watchers) where authenticity of the place may be an important item for these viewers.

#### **3.15.5.4 Environmental Consequences**

The NPS VIA Visual Change Assessment provided in Appendix Q summarizes the changes in the viewshed from each of the seven viewpoints by the construction, O&M, and decommissioning of the relevant Action Alternatives. This analysis focuses on the compatibility of the GLWP's components with the existing landscape character and their contrast with the existing landforms, vegetation, and built structures and the changes the GLWP would have on the existing view's spatial composition.

#### **3.15.5.5 Impacts of the No Action Alternative**

It is anticipated that under the No Action Alternative, the current uses and trends for the resources would continue to occur. There would be no impacts to visual resources or to the seven TUSK viewsheds attributed to the construction, O&M, and decommissioning of the GLWP under the No Action Alternative.

#### **3.15.5.6 Impacts of the Proposed Action**

##### ***Aliante/Horse (TUSK Viewpoint #7)***

The Proposed Action would construct 525-kV steel monopole structures approximately 1.5 miles away from the Aliante/Horse Viewpoint and approximately 0.8 miles behind an existing 525-kV transmission line on BLM-administered lands. Other notable built features visible from the Aliante/Horse Viewpoint are two 200-foot-diameter water tanks; the Clark County Shooting Complex; and ornamental vegetation, block walls, signage, and residential structures of varying heights associated with the North Las Vegas urban setting. The Proposed Action would not attract attention and would be compatible with the existing landscape character and structures because the existing transmission line structures are identical to the proposed 525-kV steel structures in terms of design and color. The backdrop of the Las Vegas Range with its varied colors and textures would be continuous and the distance from the viewpoint to the proposed transmission line would also reduce the contrast of the texture, scale, and vertical lines of the GLWP. The light-colored soils that occur where the viewpoint is located create a strong color contrast against the dark grays and browns of the foothills of the Las Vegas Range and would further diminish the prominence of the Proposed Action in the viewshed. The Proposed Action would add to the built features in the viewshed, but the proposed 525-kV transmission line would mimic existing features found in the setting. From the Aliante/Horse Viewpoint, the Proposed Action would result in weak contrast compared to other features in the landscape.

The different user groups at the Aliante/Horse Viewpoint would not be markedly affected by the Proposed Action because the transmission line would not attract attention. The Proposed Action would not notably diminish the experiences or expectations of hikers moving in either direction along the Aliante Trail or gathering for longer periods at the trailhead. From this viewpoint, the character of the visual setting for most visitors along the trail or at the trailhead would be more influenced by the presence of the other existing transmission lines nearer to the trail, the close proximity of the urban subdivision and infrastructure, and the rugged backdrop of the Las Vegas Range than by the Proposed Action.

### ***Durango/Moccasin (TUSK Viewpoint #12)***

The Proposed Action would construct 525-kV vertical monopole structures approximately five feet within the TUSK and in the immediate FG of the Durango/Moccasin Viewpoint. In addition to the North Las Vegas urban setting characteristics of the south unit of the TUSK, other recognizable built features visible from this viewpoint are existing 230-kV and 525-kV steel monopole transmission lines. The Proposed Action would be compatible with the existing landscape character because the existing transmission line structures are identical to the Proposed Action's 525-kV steel structures in terms of design and color. While the Proposed Action would mimic existing features found in the setting, the addition of a third set of transmission lines would increase the spatial dominance of built features in the viewshed. The addition of the Proposed Action would attract some attention away from the landscape within the TUSK and the potential location of a future TUSK entrance sign at the terminus of Durango Drive. However, views or photos from the potential entrance sign would be toward TUSK to the west and would not have the vertical monopole structures in view. From the Durango/Moccasin Viewpoint, the Proposed Action would result in weak contrast with the existing features in the landscape.

As noted above, the addition of a third set of overhead transmission lines would increase the spatial dominance of the built features at this potential location of a TUSK entrance sign at the terminus of Durango Drive. The change in the experience of entering the TUSK at this location would be more apparent to existing regular visitors, such as adjacent residents and visitors who access trails from the parking area on Moccasin Road, because they would have prior knowledge of the current conditions without the Proposed Action. The experience of infrequent visitors would not be notably affected since the views of the Las Vegas Range would not be obstructed and photos from the future sign toward the TUSK would not capture the monopole structures. The Proposed Action would most likely be seen as part of existing infrastructure because of the immediate adjacency of the urban community to the TUSK at this viewpoint and is not anticipated to change the visitor's expectations of experiencing the TUSK's resources and values. For the regular visitors who enter at this viewpoint, once they enter the TUSK and travel approximately 60 feet, the structures and maintenance pads associated with the Proposed Action would be in the opposite direction of any views toward the natural features and landforms of the characteristic landscape.

### ***Durango Trail (East)***

The Proposed Action would construct 525-kV steel monopole structures approximately 55 feet within the TUSK and in the immediate FG of the Durango Trail East Viewpoint. This viewpoint is located in one of the many drainages within the TUSK and is enclosed by badland formations. The badland landforms funnel views to the southwest toward the Spring Mountains and the mix of built features associated with the North Las Vegas urban setting. There would be no view of the Proposed Action to the northeast. Similar to the Durango/Moccasin Viewpoint, built features visible from this viewpoint are the existing 230-kV and 525-kV steel monopole transmission lines and a microwave communication tower. The Proposed Action would be identical in size and scale as the existing 230-kV and 525-kV transmission lines. It would, however, be slightly closer (approximately 55 feet from the 230-kV and approximately 205 feet from the 525-kV transmission lines) to the viewpoint and somewhat more prominent in the viewshed, which would increase the overall spatial dominance of the built features when seen from the viewpoint. The Proposed Action would attract attention but not dominate the view and would be compatible with the landscape character because it would add to the magnitude of built features in the viewshed. The Proposed Action's 525-kV steel monopole structures would be the same as the existing transmission lines in terms of design and color. From the Durango Trail (East) Viewpoint, the Proposed Action would not contrast with the existing features in the landscape.

The Proposed Action would be visible to users along the Durango Loop Trail traveling in either direction and the regular visitors would be aware of the increased spatial dominance of the built features with the addition of the Proposed Action. Depending on the user mode of travel along the trail (e.g., biker, hiker, equestrian), the views of the Proposed Action would be intermittent and variable in duration. The presence of additional monopoles would not likely make a change in the expectation of the TUSK users because the experience of the trail user is already one of a mixed urban and natural landscape. One of the fundamental resources noted in the Foundation Document is the highly dissected undulating topography and drainages associated with the upper Las Vegas Wash that give rise to the badland formations. The Proposed Action would not notably alter the current or future user's experience and expectations of these natural features along the Durango Loop Trail. The landscape, geologic processes, and badlands formations would continue to be a focus in the setting as viewed from the Durango Loop Trail with the construction of the Proposed Action.

#### ***Durango Trail (North)***

The Proposed Action would construct 525-kV vertical monopole structures approximately five feet within the TUSK and in the immediate FG of the Durango Trail (North) Viewpoint. This viewpoint is located on top of one of the badland formations within the TUSK and would be separated from the Proposed Action by a series of large drainages and other badlands formations. There would be no views of the Proposed Action to the north. Similar to the Durango/Moccasin and Durango Trail (East) viewpoints, built features visible from this viewpoint are existing 230-kV and 525-kV steel monopole transmission lines, a microwave communication tower, and development associated with the North Las Vegas urban setting. Additionally, the future Golden Triangle residential development would occur to the west of the Durango Trail (North) Viewpoint within the viewshed. The Proposed Action would be identical in size and scale to the existing 230-kV and 525-kV transmission lines. Because the 525-kV vertical monopole structures would be viewed from approximately 0.4 miles away, the Proposed Action would appear to be in the same utility corridor as these existing overhead electrical lines and would not noticeably increase the overall spatial dominance of the built features when seen from the Durango Trail (North) Viewpoint. The Proposed Action would not attract attention in the viewshed and would be compatible with the landscape character because it would be nearly indistinguishable from other built features due to the design and color of the transmission line structures. From the Durango Trail (North) Viewpoint, the Proposed Action would result in weak contrast with the existing features in the landscape.

The Proposed Action would not affect the different user groups at the Durango Trail (North) Viewpoint because the proposed transmission line would almost be indistinguishable from the existing transmission lines in the viewshed. The Proposed Action would not notably diminish the experience or expectations of TUSK visitors moving in either direction along the Durango Trail.

#### ***Golden Triangle Trailhead (TUSK Viewpoints #22 and #23)***

The Proposed Action would construct 525-kV vertical monopole structures approximately 0.7 miles away from the Golden Triangle Trailhead Viewpoint and approximately 55 feet from existing 230-kV and approximately 205 feet from the 525-kV transmission lines. This viewpoint is located adjacent to the planned future Golden Triangle residential development where a trailhead would be constructed. There would be no views of the Proposed Action to the north. Notable built features visible from the Golden Triangle Trailhead include the two existing steel monopole transmission lines, microwave communication, and the future Golden Triangle residential development. The Proposed Action would be identical in size and scale as the existing 230-kV and 525-kV transmission lines. Because Proposed Action would be viewed from approximately 0.7 miles away, it would appear to be in the same utility corridor and would not



noticeably increase the overall spatial dominance of the built features when seen from the viewpoint. The Proposed Action would not attract attention in the view and would be compatible with the landscape character because it would be nearly indistinguishable from the other built features in the viewshed due to the design and color of the transmission line structures. From the Golden Triangle Trailhead Viewpoint, the Proposed Action would result in weak contrast with the existing features in the landscape and have an overall low visual change to the view as a whole.

Similar to the Durango Trail (North) Viewpoint, the different user groups at the future Golden Trailhead would not be affected by the Proposed Action because the proposed transmission line would almost be indistinguishable from the existing built features in the viewshed. At the Golden Triangle Trailhead Viewpoint, the Proposed Action would be in the opposite direction of the predominate views toward the natural features of the TUSK landscape. The Proposed Action would not notably diminish the experience or expectations of existing or future TUSK visitors at the trailhead.

#### ***Corn Creek Springs (TUSK Viewpoint #17)***

This viewpoint is in a gravel parking area located off US 95, at a location that has been identified for a future TUSK informational kiosk. Other than existing transmission lines and US 95, there are no recognizable built features visible from this viewpoint since it is located in an undeveloped area approximately 10 miles north of the Las Vegas metropolitan area. The predominant adjacent land uses are the Desert NWR and the NTTR. When looking away from the TUSK to the west, views of the Proposed Action guyed lattice structures that would be visible in the immediate FG from the Corn Creek Springs Viewpoint. This viewpoint is approximately 800 feet and 1,000 feet away from existing monopole transmission and distribution lines, respectively. The Proposed Action would attract attention and dominate the visual setting. The guyed lattice tower structures would result in a strong contrast with the existing features in the landscape and would change the view in the immediate FG from the Corn Creek Springs Viewpoint. Beyond the immediate FG, but still in the FG and MG, the guyed lattice structures would be less visually discernible and would not attract attention of the casual observer because of the transparency of the structure, especially against a backdrop and varied terrain.

Similar to the Durango Trail (North) and Golden Triangle Trailhead Viewpoints, the different user groups at the future informational kiosk location would not be affected by the Proposed Action because the Proposed Action would be in the opposite direction of the predominate views toward the natural features of the TUSK landscape. The Proposed Action would not notably diminish the experience or expectations of existing or future TUSK visitors at the kiosk.

#### ***TUSK-Desert NWR Border***

The 525-kV guyed lattice structures would be approximately 2.1 miles from the TUSK-Desert NWR Border Viewpoint and approximately 800 feet and 1,000 feet away from existing monopole transmission and distribution lines, respectively. This viewpoint is located at the border of TUSK and the Desert NWR along Corn Creek Road. Other notable built features visible from this viewpoint include US 95, Corn Creek Road, a microwave communication tower, and the existing monopole transmission and distribution lines located approximately 2.3 miles away on the west side of US 95. The Proposed Action would be compatible with the existing landscape character because, at this distance, the guyed lattice structures would blend with the existing landscape and built features. The transmission line would also be backdropped against the Spring Mountains. The Proposed Action would not attract attention because it would not be readily discernible at this distance. From the TUSK-Desert NWR Viewpoint, the Proposed Action would not create any contrast with the existing features in the landscape and have no visual change to the view as a whole.

The different user groups at the TUSK-Desert NWR Border Viewpoint would not be affected by the Proposed Action because the proposed transmission line would almost be indistinguishable from the existing natural landforms and built features in the viewshed. When traveling east on Corn Creek Road, the guyed lattice structures would be in the opposite direction and not seen. The Proposed Action would not notably diminish the experience or expectations of TUSK visitors at the TUSK-Desert NWR Border Viewpoint.

### **3.15.5.7 Impacts from TUSK Transmission Alternative B**

#### ***Durango/Moccasin (TUSK Viewpoint #12)***

The TUSK Transmission Alternative B would construct 525-kV guyed lattice structures approximately 200 feet within the TUSK and in the immediate FG of the Durango/Moccasin Viewpoint. Other recognizable built features visible from this viewpoint are the existing 230-kV and 525-kV steel monopole transmission lines and ornamental vegetation, block walls, signage, sidewalks, street lighting, and varying residential structures associated with the North Las Vegas urban setting. The TUSK Transmission Alternative B would be somewhat compatible with the existing landscape character because it would be constructed of the same material as the existing transmission lines and would mimic their spacing and sequence. The contrast of the TUSK Transmission Alternative B would vary from weak to strong in form, line, and texture depending on the distance and backdrop conditions from the viewpoint. The guyed lattice structures would change the spatial characteristics of the views because of the form and texture that would disrupt the pattern of the existing transmission lines. The lattice structures would, however, become less apparent at increased distances from the viewpoint due to the open lattice design of the form and the flat gray finish.

While the TUSK Transmission Alternative B would mimic existing features found in the setting, the addition of a third set of transmission lines would increase the spatial dominance of built features in the viewshed. The guyed lattice structures would attract attention away from the landscape within the TUSK and the potential future TUSK entrance sign at the terminus of Durango Drive. However, views or photos from the future sign toward TUSK would not have the guyed lattice structures in view. The TUSK Transmission Alternative B would change the view overall because it would differ from the existing landscape character and increase the spatial dominance of the built features in the landscape seen from the viewpoint. The visual change would decrease with increasing distance from the Durango/Moccasin Viewpoint.

As with the Proposed Action, the addition of a third set of overhead transmission lines would increase the spatial dominance of the built features at this future TUSK entrance sign planned at the terminus of Durango Drive. The change in the experience of entering TUSK at this location would be more apparent to existing regular visitors, such as adjacent residents and those who access trails from the parking area on Durango Drive, because they would have prior knowledge of the current conditions without the TUSK Transmission Alternative B. The experience of infrequent visitors would not be notably affected since the views of the Las Vegas Range would not be obstructed and photos from the future sign toward the TUSK would not capture the guyed lattice structures. The TUSK Transmission Alternative B would most likely be seen as part of existing infrastructure because of the immediate adjacency of the urban community to the TUSK at this viewpoint and would not notably change the visitor's expectation of experiencing the TUSK's resources and values. For the regular visitors who enter at this viewpoint, once they enter the TUSK and travel approximately 60 feet, the structures associated with TUSK Transmission Alternative B would be in the opposite direction of any views toward the natural features and landforms of the characteristic landscape.

#### ***Durango Trail (East)***

The TUSK Transmission Alternative B would construct 525-kV guyed lattice structures approximately 200 feet within the TUSK and in the immediate FG of the Durango Trail (East) Viewpoint. There would be

no view of the guyed lattice structures to the northeast. Similar to the Durango/Moccasin Viewpoint, built features visible from this viewpoint are the existing 230-kV and 525-kV steel monopole transmission lines and a microwave communication tower. The TUSK Transmission Alternative B would be somewhat compatible with the existing landscape character because it would be constructed of the same material as the existing transmission lines and would mimic their spacing and sequence. The guyed lattice structures would change the spatial characteristics of the views because of the form and texture that would disrupt the pattern of the existing transmission lines. The addition of a third set of transmission lines would increase the spatial dominance of built features in the viewshed. The contrast of TUSK Transmission Alternative B would vary from weak to strong in form, line, and texture depending on the distance and backdrop conditions from the viewpoint. The TUSK Transmission Alternative B would change the view as a whole because it would differ from the existing landscape character and increase the spatial dominance of the built features in the landscape seen from the viewpoint. The lattice structures would, however, become less apparent at increased distances from the viewpoint due to the open lattice design of the form and the flat gray finish, and the visual change would decrease with increasing distance from the Durango Trail (East) Viewpoint.

The Proposed Action would be visible to users along the Durango Loop Trail traveling in either direction and the visitors would be aware of the increased spatial dominance of the built features with the addition of the guyed lattice structures. Depending on the user mode of travel along the trail (e.g., biker, hiker, equestrian), the views of the TUSK Transmission Alternative B would be the same as the Proposed Action, which would be intermittent and variable in duration. The presence of guyed lattice structures would not likely make a change in the expectation of the TUSK users because the experience of the trail user is already a mixed urban and natural landscape. The guyed lattice structures would not notably alter the current or future user's experience and expectations of these natural features along the Durango Loop Trail. The landscape, geologic processes, and badlands formations would continue to be a focus in the setting as viewed from the trail with the construction of TUSK Transmission Alternative B.

#### ***Durango Trail (North)***

TUSK Transmission Alternative B would construct 525-kV guyed lattice structures approximately 200 feet within the TUSK and in the immediate FG of the Durango Trail (North) Viewpoint. This viewpoint is located on top of one of the badland formations within TUSK and would be separated from the Proposed Action by a series of large drainages and other badlands formations. There would be no view of the Proposed Action to the north. The TUSK Transmission Alternative B would be compatible with the existing landscape character because it would be constructed of the same material as the existing transmission lines, would mimic their spacing and sequence, and the guyed lattice structures would blend with the existing transmission lines and backdrop conditions. The guyed lattice structures would not contrast with the existing landscape due to the viewing distance and backdrop conditions from the viewpoint. The TUSK Transmission Alternative B would not attract attention in the view and would be compatible with the landscape character because it would be nearly indistinguishable from the other built features in the viewshed due to the design and color of the transmission line structures. From the Durango Trail (North) Viewpoint, the TUSK Transmission Alternative B would have an overall low visual change to the view as a whole.

The TUSK Transmission Alternative B would not affect the different user groups at the Durango Trail (North) Viewpoint because the open lattice structures would not attract attention and would blend against the backdrop in the viewshed. The TUSK Transmission Alternative B would not notably diminish the experience or expectations of TUSK visitors moving in either direction along the Durango Trail.

### ***Golden Triangle Trailhead (TUSK Viewpoints #22 and #23)***

TUSK Transmission Alternative B would construct 525-kV guyed lattice structures approximately 0.7 miles away from the Golden Triangle Trailhead Viewpoint, approximately 55 feet from the existing 230-kV transmission line, and approximately 205 feet from the existing 525-kV transmission line. There would be no view of the guyed lattice structures to the north. TUSK Transmission Alternative B would be somewhat compatible with the existing landscape character because it would be constructed of the same material as the existing transmission lines and would mimic their spacing and sequence, but the guyed lattice structures would be discernibly different than the existing transmission lines from the viewpoint. The contrast of the guyed lattice structures would vary from weak to moderate in form, line, and texture, depending on the distance and backdrop conditions from the viewpoint. While the TUSK Transmission Alternative B would mimic existing features found in the setting, the addition of a third set of transmission lines that would be noticeably different from the existing transmission lines would begin to attract attention away from the landscape within the TUSK.

Similar to the Proposed Action, the different user groups at the future Golden Trailhead would not be affected by the TUSK Transmission Alternative B because the proposed transmission line would be almost indistinguishable from the existing built features in the viewshed. At the Golden Triangle Trailhead Viewpoint, the TUSK Transmission Alternative B would be in the opposite direction of the predominate views toward the natural features of the TUSK landscape. The TUSK Transmission Alternative B would not notably diminish the experience or expectations of existing or future TUSK visitors at the trailhead.

### **3.15.5.8 Impacts from Anti-Perching/Nesting Mitigation Measure**

#### ***Corn Creek Springs (TUSK Viewpoint #17)***

When looking away from the TUSK to the west, views of the 525-kV H-frame that would be visible in the immediate FG from the Corn Creek Springs Viewpoint would attract attention and dominate the visual setting. The tubular H-frame structure would result in weak to strong contrast with the existing features in the landscape and would create a visual change to the view as a whole in the immediate FG from the Corn Creek Springs Viewpoint. Beyond the immediate FG, but still in in the FG and MG, the 525-kV H-frame structures would be more visually discernible and attract more attention of the casual observer compared to the Proposed Action because of their greater height and solid (not transparent) tubular form.

The addition of another overhead transmission line would increase the spatial dominance of the existing utility corridor along the west side of US 95. The change in the visitor experience of entering TUSK at this future kiosk location would be more apparent to existing regular visitors because they would have prior knowledge of the current conditions without the Proposed Action. The experience of infrequent visitors would not be notably affected since the views toward the TUSK and the Las Vegas Range would not be obstructed once the visitors turn off US 95 at the future kiosk. The H-frame structures associated with the 525-kV tubular H-frame would be in the opposite direction of any views toward the natural features and landforms of the characteristic landscape. The 525-kV tubular H-frame would most likely be seen as part of existing infrastructure because of the existing utility corridor and highway at this viewpoint and would not notably change the visitor's experience or expectation of TUSK's resources and values.

#### ***TUSK-Desert NWR Border***

The 525-kV H-frame structures would be approximately 2.1 miles from the TUSK-Desert NWR Border Viewpoint and approximately 800 feet and 1,000 feet away from existing monopole transmission and distribution lines, respectively. The 525-kV H-frame structures would be compatible with the existing landscape character because, at this distance, the H-frame structures would blend with the existing

landscape and built features. The transmission line would also be backdropped against the Spring Mountains. Similarly, the Proposed Action would not attract attention because it would not be readily discernible at this distance. From the TUSK-Desert NWR Viewpoint, the Proposed Action would not contrast with the existing features in the landscape and would have no visual change to the view as a whole.

Similar to the Proposed Action, the different user groups at the TUSK-Desert NWR Border Viewpoint would not be affected by the 525-kV H-frame structures because the proposed transmission line would almost be indistinguishable from the existing natural landforms and built features in the viewshed. When traveling east on Corn Creek Road, the 525-kV H-frame would be in the opposite direction and would not be seen. The 525-kV tubular H-frame would not notably diminish the experience or expectations of TUSK visitors at the TUSK-Desert NWR Border Viewpoint.

### **3.16 Socioeconomic Resources and Environmental Justice**

Refer to Appendix AB. Other Resources/Uses Analyzed in Detail for a discussion of the affected environment and environmental consequences associated with socioeconomic resources and environmental justice from the implementation of the Action and No Action Alternatives. Any changes that have been made to Section 3.16 are a result of comments and input on the Draft EIS/RMPA. Refer to Section 3.18.6.16 for the cumulative impacts associated with socioeconomic resources and environmental justice.

### **3.17 Public Health and Safety**

Refer to Appendix AB. Other Resources/Uses Analyzed in Detail for a discussion of the affected environment and environmental consequences associated with public health and safety from the implementation of the Action and No Action Alternatives. Any changes that have been made to Section 3.17 are a result of comments and input on the Draft EIS/RMPA. Refer to Section 3.18.6.17 for the cumulative impacts associated with public health and safety.

### **3.18 Cumulative Impacts**

The CEQ regulations define cumulative impacts as those “effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and RFFAs, regardless of what agency (federal or non-federal) or person undertakes such other actions” (40 CFR 1508.1(g)(3)). The regulations further explain that “[c]umulative effects can result from individually minor but collectively significant actions taking place over a period of time” (40 CFR 1508.1(g)(3)). Reasonably foreseeable future actions, while not part of the Proposed Action, refer to future projections or estimates of what could take place when an action is implemented. Considering RFFAs allows an agency to estimate the potential effects of a proposed action together with future impacts, cumulative and otherwise, as required by NEPA. Cumulative impacts are interdisciplinary, multijurisdictional, and may not conform to jurisdictional boundaries.

This section analyzes the cumulative effects of the Action Alternatives<sup>14</sup> that would result from the construction and operation of the GLWP<sup>15</sup> combined with past, present, or RFFAs. The determination of

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<sup>14</sup> The Action Alternatives refer collectively to the Proposed Action and all of the transmission, substation, and microwave alternatives, unless the Proposed Action or one of the other Action Alternatives are called out specifically.

<sup>15</sup> In the discussion of cumulative impacts, GLWP refers collectively to the Action Alternatives. Any statistics provided in this cumulative impact section of the EIS regarding acres of temporary or permanent ROW areas are reflective of the Proposed Action. The temporary and permanent

what past, present, and RFFAs to consider in the impact analysis is based on the resources affected by the proposed GLWP. Past, present, and RFFAs that incrementally add to the potential cumulative impacts of the Action and No Action Alternatives are considered in this Final EIS/Proposed RMPA. The intent of this analysis is to capture the total effects of multiple actions over time that would be missed by evaluating each action individually.

### **3.18.1 Analysis Methods**

The terms impacts and effects are recognized and used synonymously by the CEQ (40 CFR 1508.1(g)) and according to the CEQ's "Considering Cumulative Effects under the National Environmental Policy Act" (CEQ 1997). For this analysis, projects that could result in similar cumulative effects include linear projects such as roads, transmission lines, and pipelines, and large area developments such as military installations, planned area developments, substations, conventional and fossil-fueled power plants, and renewable energy developments.

This analysis evaluates the Action Alternatives' contribution to cumulative effects, which are assessed in three basic steps. The first step is to identify the timeframe of effects and the cumulative effects analysis area (CEAA) for each resource. The next step is to identify and describe past, present, and RFFAs within the applicable resource CEAs and evaluate their cumulative effects. The last step is to evaluate the Action Alternatives' potential to contribute to cumulative environmental effects of past, present, future, and RFFAs.

The Action Alternatives would traverse various ecological zones, both natural and built features, and lands under different management and owners. Quantitative data describing potential effects of RFFAs or development were used where available. Where reliable quantitative data could not be found, qualitative data were used to best assess the cumulative effects of the Action Alternatives according to the assessment of resource specialists' professional judgement.

The methods used to assess cumulative effects are resource dependent and include the following:

- Pre-NOI public workshops, scoping meetings, and interviews were used to identify proposed projects, development plans, environmental resources, local knowledge, and community concerns.
- Trend analysis was used quantitatively where data allowed, such as for renewable energy development, and qualitatively used when interviewing local experts, such as with land use and development patterns.
- GIS overlays and impact analyses were used to understand spatial and temporal relationships of the Proposed Action with past, present, and RFFAs. In addition, a GIS impact analysis was used to analyze direct and indirect effects of the Action Alternatives.

Energy development forecast analysis was used to forecast reasonably foreseeable future renewable energy development based on RMPs, local plans, existing and planned energy development projects, typical energy development units, and transmission facility configurations.

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ROW areas are equated to acres of disturbance. Acres of permanent disturbance associated with the other Action Alternatives would be within approximately 12 percent (plus or minus) of the amount of the Proposed Action, with the exception of the Mason Valley WMA Transmission Alternative A permanent disturbance, which would be 44 percent greater than the Proposed Action.

### 3.18.2 Timeframe of Effects and Cumulative Effects Analysis Area

#### 3.18.2.1 Timeframe of Effects

Past, present, and RFFAs are relative to the baseline conditions established for the GLWP. The baseline conditions for the cumulative effects analysis are established by the No Action Alternative. Under the No Action Alternative, the federal ROW agencies would not grant or permit a ROW; the GLWP facilities, including transmission lines and ancillary components would not be built; and the existing environmental conditions including the identification of past and present actions, events, and occurrences as described previously would persist.

Evaluating the Action Alternatives against the baseline conditions provides a reference point in time to gauge cumulative effects. In terms of timeframe, the cumulative effects analysis is considered over a 35-year period. Short-term or temporary impacts are impacts that would last up to eight years (three years to complete construction activities and five years for site reclamation). Long-term impacts are impacts that would be greater than eight years.

The proposed GLWP would have a life expectancy of 35 years based on electrical demand, maintenance, and the expected life of the project facilities and major components. This cumulative impact analysis includes identification of the potential cumulative impacts that could occur during the construction and operation periods for the GLWP. Decommissioning of the GLWP would occur beyond the 30-year ROW grant/permit for the cumulative impacts analysis and the scope of impacts during the decommissioning timeframe are considered speculative and cannot be meaningfully analyzed.

#### 3.18.2.2 Cumulative Effects Analysis Area

The geographic extent of cumulative effects varies according to the affected resource analyzed. Table 3-92 provides the defined CEAA for the Action Alternatives by resource. Figures T-1 through Figure T-17 in Appendix T illustrate the CEAA for each of the resources analyzed for cumulative effects.

**Table 3-93. Cumulative Effects Analysis Areas**

<b>Resource</b>	<b>Definition of CEAA</b>	<b>Total Est. Acres of CEAA</b>
Air Quality, Climate Change, and GHG Emissions; Land Use and Realty; and Socioeconomic Resources and EJ	Boundaries of the seven counties in which the Action Alternatives would be located	27,181,260
Cultural Resources and Native American Religious Concerns	3-mile radius from the centerlines of the Action Alternatives	1,723,791
Earth Resources – Mineral Resources	1-mile radius from mining districts that would be crossed by the Action Alternatives	2,107,492
Earth Resources – Soil Resources	0.5-mile radius from high wind and water soil erosion, Prime and Unique Farmland, biological crusts potential areas	753,247
Federally Listed Species – Bi-State Sage-Grouse (proposed listing)	PMUs (Pine Nut, Mount Grant, White Mountains)	3,027,327
Federally Listed Species – Lahontan Cutthroat Trout and Northwestern Pond Turtle; Special Status Aquatic Species; and Water Resources – Wetlands and Riparian Areas	HUC-10 watersheds that would be crossed by the Action Alternatives that contain the Walker and Carson rivers	6,412,975

**Table 3-92. Cumulative Effects Analysis Areas  
(continued)**

Resource	Definition of CEAA	Total Est. Acres of CEAA
Federally Listed Species – Mount Charleston Blue Butterfly	5-mile radius from the designated critical habitat for the Mount Charleston blue butterfly	50,554
Federally Listed Species – Mojave Desert Tortoise	Northeastern and Eastern Mojave Recovery Units	15,817,572
Federally Listed Species – Southwestern Willow Flycatcher, Yellow-Billed Cuckoo, and Yuma Ridgway’s Rail; General Wildlife; General Vegetation; Special Status Bird and Bat Species; Special Status Plants; and Special Status Terrestrial Wildlife	5-mile radius from the temporary ROW area for the Action Alternatives	3,355,892
Federally Listed Species – Plants	5-mile radius from the federally listed species range and the temporary ROW area for the Action Alternatives	616,314
Golden Eagles	10-mile radius from the temporary ROW area for the Action Alternatives	6,410,185
NHTs and Trails Under Study for Congressional Designation	Locations where NHTs would be within a 5-mile radius from the centerlines of the Action Alternatives	625,781
Paleontological Resources	Very high, high, and moderate PFYC areas mapped within the seven counties in which the Action Alternatives would be located	985,113
Public Health and Safety	0.5-mile radius from populated areas (incorporated town/cities and census designated places) and the temporary ROW area for the Action Alternatives	939,685
Special Designation Areas	5-mile radius from the boundaries of special designation areas	5,923,384
Special Designation Areas – LWC	Inventoried LWC units within SNDO, TFO, and CCDO	3,659,079
Visual Resources	5-mile radius from the centerlines of the Action Alternatives	2,761,701
Water Resources – Surface and Groundwater	HUC-8 watersheds that would be crossed by the Action Alternatives	17,136,078

*Table Acronym(s):* CCDO – Carson City District Office; CEAA – Cumulative Effects Analysis Area; EJ – Environmental Justice; Est. – Estimated; GHG – Greenhouse Gas; HUC – Hydrologic Unit Code; LWC – Lands with Wilderness Characteristics; NHT – National Historic Trail; PFYC – Potential Fossil Yield Classification; PMU – Population Management Unit; ROW – Right-of-way; SNDO – Southern Nevada District Office; TFO – Tonopah Field Office

### 3.18.3 Past and Present Actions

The cumulative effects analysis does not attempt to quantify the effects of past and present human actions by adding up all prior and existing actions on an action-by-action basis. Existing conditions reflect the aggregate impact of prior human actions and natural events that have affected the environment and could contribute to cumulative effects. By looking at current conditions, the residual effects of past human actions and natural events are captured, regardless of which particular action or event contributed those effects. The CEQ issued an interpretive memorandum on June 24, 2005, regarding analysis of past actions, which states, “agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions” (CEQ 2005).

### 3.18.4 Reasonably Foreseeable Future Actions

Per the BLM NEPA Handbook (H-1790-1), RFFAs are actions that have existing decisions, funding, or formal proposals or that are highly probable based on known opportunities or trends (BLM 2008b). As part of this cumulative analysis, all RFFAs were assessed in detail based on project description and spatial information (Appendix T). For all RFFAs, projects were categorized into various types (e.g., transportation, mining),



vicinity (e.g., rural, urban), and land use (e.g., existing roadway, existing facility). Knowing the vicinity and land use for projects is important to determine the cumulative impact of an action. For example, an action occurring within a rural area on undeveloped lands may have a much greater cumulative impact than the same project occurring within an urban area on previously disturbed lands or within an existing facility. Given the nature of solar development, many would likely occur in rural to semi-rural vicinities and on undeveloped lands. The list of RFFAs focused on identifying major projects such as interstate and state route transportation projects, energy-related projects, and general construction projects expected to exceed five acres.

The RFFAs are projections so that future effects, cumulative and otherwise, can be estimated as required by CEQ. Specific projects within the resource CEAs have been identified by land management agencies, including the BLM; USFS Schedule of Proposed Actions (SOPA); NPS; USFWS; DOD; DOE; NDOT; NDOW; Nevada Division of Forestry; University of Nevada; Clark, Nye, Lyon, Esmeralda, Storey, and Washoe counties; and incorporated cities within each listed county. Table T-2 in Appendix T identifies the name of the RFA and a brief description of each project within the CEAs. Figure T-18 to Figure T-27 in Appendix T provide the general location of the RFFAs by major project type.

Within the CEAs of the resources analyzed for their contribution to cumulative impacts, there are an estimated 56 pending applications for solar projects proposed over potentially 333,426 acres, primarily on BLM-administered lands in Clark, Esmeralda, Mineral, and Nye counties. The pending applications for solar projects range in size from 420 acres to over 17,000 acres (Appendix T).

In addition to solar RFFAs, other types of major projects include transportation improvements primarily in the metropolitan areas of Las Vegas and Reno, mineral exploration and mining operations, general development projects such residential subdivisions, utilities, and wildlife conservation management and habitat restoration including two nominated ACECs (Cactus Springs and Esmeralda/Fish Lake). Other highly probable RFFAs and management activities occurring in the CEAs include livestock grazing, range improvements, vegetation management, recreation (e.g., hunting, OHV use), road improvements, transmission and distribution lines, telephone lines, communication towers, and community development. Ongoing activities also include wildland fire management activities and programs to minimize the spread of noxious weeds and invasive plant species.

### **3.18.5 Reasonably Foreseeable Future Actions Assumptions**

- As stated in Section 1.2 Proponent Goals, the purpose of GLWP is to provide redundancy, reliability, and resiliency of electrical power to the Reno-Sparks area, and as such, the GLWP has independent utility.
- The construction of the GLWP is not predicated on the development of the 56 pending applications for solar projects or any other RFFAs along the approximately 472-mile transmission route.
- The actual acres of the RFFAs would most likely be less than the estimated acres of each of the RFFAs noted in Appendix T, Table T-2.
- All of the RFFAs may not be constructed. This results in an overestimate in the number of RFFAs and the number of acres potentially disturbed by RFFAs.
- If the ROW applications for the GLWP were to be denied by the federal ROW agencies, the pending solar projects would look at other transmission lines to distribute their generated power.

- It is assumed that the RFFAs would not occur simultaneously. The extent that the RFFAs would be developed concurrently is difficult to predict and is dependent on numerous factors:
  - some may be in a design stage;
  - others may be undergoing NEPA evaluation; and
  - other RFFAs may be authorized but construction is not underway.
- The RFFAs located on federally-administered lands or that use federal funds would be subject to environmental review (e.g., NEPA, NHPA, ESA) and would be required to incorporate measures to minimize adverse impacts.
- Appendix T includes RFFAs that would be located on federal and non-federal lands. Because Nevada does not have an environmental quality act, RFFAs on non-federal lands may not require environmental resource inventory, impact analysis, or subsequent measures to minimize adverse impacts.
- Synergist/non-synergist impacts were not distinguished in the analysis of cumulative impacts.

### **3.18.6 Cumulative Impacts to Resources**

For this analysis, cumulative resource impacts for the CEAs are the combined direct and indirect effects of the present and RFFAs, in addition to the direct and indirect impacts of the Action Alternatives and No Action Alternative. Based on the analysis of impacts, only short-term impacts would occur from the construction or decommissioning of the Action Alternatives for a resource/use. Therefore, there would be no measurable contribution of the Action Alternatives' short-term impacts to a given resource's/use's cumulative impacts, and no cumulative short-term effects analysis for the respective resource/use has been done.

#### **3.18.6.1 Federally Listed Species**

##### **Bi-State Sage-grouse**

The major types of past, present, and RFFAs that could contribute to cumulative impacts to Bi-State sage-grouse include, for example, transmission lines and other infrastructure projects; mining; and commercial, industrial, and residential development. When combined with past and present conditions and other threats such as wildfire and recreation, and invasive plant species and noxious weeds, these threats fragment and isolate populations and would be most noticeable in the White Mountains and Pine Nut PMUs. These two PMUs have the smallest subpopulations of Bi-State sage-grouse and are at highest risk for extirpation (N.D. Cal. 2022).

Currently, there would be an estimated 17 RFFAs within the Bi-State sage-grouse CEAA including applications for seven solar projects, three transmission line projects, and one mining project. Other RFFAs include dam decommissioning, community center construction, a BLM ACEC, and invasive plant and noxious weeds treatment. The RFFA involving treatment of invasive and noxious weeds in the Mount Grant PMU is anticipated to improve vegetation conditions within the Bi-State sage-grouse CEAA. Of the identified RFFAs, seven are utility-scale solar projects that would cover approximately 42,673 acres of BLM-administered lands near the junction of US 6 and US 95 in Esmeralda County, which would be approximately one percent of the Bi-State sage-grouse CEAA. The mining and renewable energy RFFAs would result in disturbance to or modification of areas of the Bi-State sage-grouse PMUs, though would

not likely contribute to reductions in suitable habitat because the activities are at the eastern end of the CEAA and would not bisect existing populations or habitat. In combination, past, present, and RFFAs would result in cumulative impacts to the Bi-State sage-grouse and their habitats within the associated CEAA.

### **Mojave Desert Tortoise**

The major types of past, present, and RFFAs that could contribute to cumulative impacts to Mojave desert tortoise include, for example, renewable energy development; roadway/transportation projects; and commercial, industrial, and residential development. There would be an estimated 164 RFFAs within the Mojave desert tortoise CEAA (or tortoise CEAA) that would occur primarily in Clark and Nye counties. The RFFAs encompassing the most land area would be the 38 pending applications for solar projects estimated at 226,676 acres, which would be less than two percent of the tortoise CEAA. After the solar RFFAs, roadway/transportation projects that are planned primarily in the Las Vegas metropolitan area make up the largest number of RFFAs within the CEAA (38 RFFAs). One of the RFFAs within the CEAA is a nomination for the 58,000-acre Cactus Springs ACEC near Indian Springs that proposes to preserve Mojave desert tortoise habitat and various natural resources.

In the past, the vast majority of threats to the Mojave desert tortoise or its habitat are associated with actions that result in mortality of Mojave desert tortoise and permanent habitat loss across large areas, such as urbanization, utility-scale renewable energy projects, and projects that fragment and degrade habitats such as roads and mining and mineral exploration projects. The past, present, and RFFAs have and would continue to result in Mojave desert tortoise mortality and injury due to collisions with vehicles and crushing of burrows and eggs, harassment during translocation of Mojave desert tortoises away from construction activities, and an increase in predation from unintentional roosting and foraging structures. The 2011 Mojave Desert Tortoise Recovery Plan (USFWS 2011b) recognized the reallocation of public lands for solar development would adversely affect Mojave desert tortoise and desert ecosystems, with long-term effects resulting in habitat fragmentation and restriction in gene flow. The combination of habitat loss and fragmentation from the existing US 95 in addition to the 19 solar RFFAs (an estimated 130,606 acres) in the area between North Las Vegas and Beatty is anticipated to result in long-term impacts on Mojave desert tortoise populations from habitat loss, fragmentation, and loss of connectivity causing restriction of gene flow between regional populations. A recent study on Mojave desert tortoise connectivity (Averill-Murray et al. 2021) identified the Indian Springs area as an important linkage area to connect core habitats that are fragmented by linear barriers (in this case, US 95). The remaining solar RFFAs (an estimated 96,070 acres) within the tortoise CEAA would be located southeast of Pahrump and in the vicinity of Moapa and would result in similar impacts to the Mojave desert tortoise population.

The solar RFFAs in the CEAA would be located on BLM-administered lands and the actual acres that would be authorized by the BLM would be less than the estimated 226,676 acres. The nominated Cactus Springs ACEC, if designated through a land use planning process and management decision, could exclude solar development if necessary to protect the areas relevance and importance values. This ACEC could protect 44 percent of the estimated 130,606 acres of pending solar development between North Las Vegas and Beatty. This could benefit local populations of Mojave desert tortoise near Indian Springs over the long-term. Compliance with the ESA requires payment into a mitigation fund for each RFFA on federal land in Mojave desert tortoise habitat to help offset the impacts to the species and their habitats. In combination, past, present, and RFFAs would result in cumulative impacts to the Mojave desert tortoise and their habitats.

### **Mount Charleston Blue Butterfly**

The major types of past, present, and RFFAs that could contribute to cumulative impacts to Mount Charleston blue butterfly include projects that result in habitat loss or degradation from the introduction of invasive species and sedimentation and herbicide application. These impacts are typically associated with invasive species management, highway and roadway construction, timber harvest, fire management, and infrastructure development. The Mount Charleston blue butterfly CEAA would primarily occur within areas managed by the USFS. Past and present projects include roadway maintenance such as invasive species control, sediment-control measures, and fire management. No RFFAs are identified within the Mount Charleston blue butterfly CEAA, which is located within the Spring Mountains. In combination, past, present, and RFFAs would result in negligible cumulative impacts to the Mount Charleston blue butterfly and their habitats.

### **Lahontan Cutthroat Trout and Northwestern Pond Turtle**

The major types of past, present, and RFFAs that could contribute to cumulative impacts to Lahontan cutthroat trout and northwestern pond turtle include projects that alter stream discharge, channels, and morphology; degrade water quality; and reduce lake levels. These impacts typically include, for example, agriculture and grazing, mining, dam building or decommissioning, and discharge from wastewater treatment facilities (USFWS 1995b, 2023a).

The CEAA for Lahontan cutthroat trout and northwestern pond turtle would include 18 RFFAs. These RFFAs include decommissioning the Eldorado Dam, six general development projects, seven utility and transmission line projects, a treatment of invasive plant species and noxious weeds, a livestock grazing authorization on BLM-administered land, and two roadway projects. The Eldorado Dam is a small dam on the Eldorado Canyon Drainage, which is a tributary of the Carson River. This tributary does not contain suitable habitat and is not occupied by Lahontan cutthroat trout or northwestern pond turtle. Therefore, this RFFA would have no impact on the two species. The utility projects would be located far from the Carson River and would not impact on Lahontan cutthroat trout and northwestern pond turtle or their habitats. A BLM grazing allotment is located approximately 12 miles north of the Carson River and would not impact the two species or their habitats. The invasive plant species and noxious weed project and the Walker River Economic Development Plan project would have impacts on this fish species by its reclamation and recovery of riparian vegetation along rivers and streams. In combination, past, present, and RFFAs would result in negligible cumulative impacts to the Lahontan cutthroat trout and northwestern pond turtle and their habitats within the associated CEAA.

### **Southwestern Willow Flycatcher, Yellow-Billed Cuckoo, and Yuma Ridgway's Rail**

The major types of past, present, and RFFAs that could contribute to cumulative impacts to southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail include, for example, urbanization and development, agriculture and grazing, and infrastructure improvements such as roadways and power lines. These types of projects could contribute to habitat loss and modification of hydrology to riparian habitats and wetlands and changes in exotic and non-native plant species (e.g., tamarisk).

There would be an estimated 91 RFFAs within the CEAA for southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail. The major types of RFFAs include roadway/transportation projects (23 RFFAs, mostly around Las Vegas and Reno), utility projects (12 RFFAs), and urban development/improvement projects (7 RFFAs). The RFFAs also include 36 pending solar applications, primarily in the Amargosa Valley. The renewable energy, utility, transportation, and mining RFFAs are not located within suitable riparian or wetland habitat for these three bird species and are not anticipated to indirectly impact breeding and foraging habitat for these species. The construction activities, urbanization, increased

vehicle use, and human presence associated with these projects may disturb birds migrating and flying between suitable habitats. The 36 pending solar applications (totaling an estimated 205,288 acres) would equate to 6 percent of the CEAA for southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail. These pending solar projects, if approved and constructed, may impact migrating and dispersing birds, especially in regard to the waterbirds such as the Yuma Ridgway's rail, due to avian collisions from the lake effect phenomenon from solar projects (Kosciuch et al. 2020; Penniman and Duffy 2021). In combination, past, present, and RFFAs would result in negligible cumulative impacts to the southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail and their habitats within the associated CEAA.

### **Federally Listed Plant Species**

The majority of impacts to special status plants would occur as a result of permanent habitat loss or degradation due to urbanization, utility-scale renewable energy projects, and mining and mineral exploration. There would be an estimated 23 RFFAs within the federally listed plant species CEAA including pending applications for 16 solar projects and 5 mining projects. The RFFAs encompassing the largest areas would be the 16 pending applications for solar projects estimated at 103,161 acres, which would be 17 percent of the federally listed plant species CEAA.

The concentration of solar RFFAs within the species range for the seven Ash Meadows plant species (Amargosa niterwort, Ash Meadows gumplant, Ash Meadows blazingstar, Ash Meadows ivesia, Ash Meadows milkvetch, Ash Meadows sunray, and spring-loving centaury) would impact suitable habitat and local populations if disturbance to occupied habitat cannot be avoided. Impacts of the RFFAs may include crushing of individual plants by construction equipment or personnel, habitat degradation (e.g., increased sedimentation, fugitive dust), introduction of noxious weeds and invasive plants species, habitat removal from construction of the RFFAs and associated new access roads, and alterations of habitat and behavior patterns of the species' pollinators and herbivores. The RFFAs may include preconstruction surveys, avoidance buffers, and monitoring federally listed plant populations to reduce impacts to the Ash Meadows plant species. In combination, past, present, and RFFAs would result in cumulative impacts to federally listed plants and their respective habitat within the associated CEAA.

### **All Action Alternatives Contribution to Cumulative Impacts**

#### **Bi-State Sage-grouse**

The implementation of the Action Alternatives would result in impacts on Bi-State sage-grouse including habitat loss, introduction and spread of non-native and invasive plant species, and increased predation by ravens foraging from transmission line structures. The implementation of EMMs (Appendix C. EMMs BSSG-1 through BSSG-16), the BBCS (Appendix H), and the anti-perching/nesting mitigation measure would decrease impacts on Bi-State sage-grouse within the CEAA.

The Action Alternatives, when combined with past, present, and RFFAs, would result in cumulative effects on Bi-State sage-grouse within the associated CEAA. The Action Alternatives would result in a negligible contribution to cumulative effects on Bi-State sage-grouse within the Bi-State sage-grouse CEAA because of the total amount of the disturbance of the Action Alternatives compared to the Bi-State sage-grouse CEAA (approximately 0.1 percent) and the implementation of the EMMs and the anti-perching/nesting mitigation measure.

#### **Mojave Desert Tortoise**

The implementation of the Action Alternatives would result in localized impacts on Mojave desert tortoise such as mortality and injury from handling and relocation, vehicles, and increased predation by ravens

foraging from transmission line structures and/or disturbance to burrows; habitat degradation and fragmentation; and disturbance from increased human activity. The implementation of EMMs (Appendix C. EMMs MDT-1 through MDT-5), the Raven Management Plan (Appendix G), and the anti-perching/nesting mitigation measure, would reduce some of the impacts of the GLWP on Mojave desert tortoises.

The effects of the Action Alternatives, when combined with past, present, and RFFAs, would result in cumulative effects on Mojave desert tortoise within the associated CEAA. Cumulative impacts would include the loss of up to and estimated 220,435 acres of suitable habitat from pending solar development; impacts on additional habitat from the remaining 70 roadway, construction, and other development projects; fragmentation of habitat resulting in reduction of habitat connectivity, particularly along US 95; and loss of approximately 4,074 acres of habitat from construction, O&M, and decommissioning of the Action Alternatives. Combined with the current status of Mojave desert tortoise in the region, the trend in species declines over the last 10 years, and their reduced ability to tolerate additional stressors, cumulative impacts on Mojave desert tortoise and their habitat would be substantial particularly because of the concentration of solar RFFAs within the Eastern Mojave Recovery Unit.

The disturbance associated with the Action Alternatives would be less than two percent of the total estimated disturbance associated with the solar RFFAs within the Mojave desert tortoise CEAA. This proportion of the Action Alternatives to the RFFAs would be less when considering all of the RFFAs within the CEAA, which do not have current estimates for acres of disturbance. The Proponent would implement various measures identified in the EMMs (Appendix C) and the anti-perching/nesting mitigation to reduce impacts noted above. The Action Alternatives would result in a contribution to cumulative effects on Mojave desert tortoise within the tortoise CEAA.

#### **Mount Charleston Blue Butterfly**

No habitat loss is anticipated under the proposed expansion of the Angel Peak Microwave Site. The Action Alternatives may result in indirect impacts on the Mount Charleston blue butterfly from habitat degradation due to sedimentation and introduction of invasive species into areas within the Spring Mountains. These impacts would be reduced through implementation of EMMs (Appendix C) and the Integrated Weed Management Plan (COM Plan pending NV Energy n.d.). The effects of the Action Alternatives, when combined with past, present, and RFFAs, would result in degradation of localized habitat where the Action Alternatives occur within the Spring Mountains. Due to the size of the temporary and permanent disturbance of the Action Alternatives compared to the Mount Charleston blue butterfly CEAA (less than 0.1 percent) and implementation of measures to reduce impacts, the Action Alternatives would result in a negligible contribution to cumulative effects on the Mount Charleston blue butterfly within the CEAA.

#### **Lahontan Cutthroat Trout and Northwestern Pond Turtle**

The Action Alternatives may result in impacts on Lahontan cutthroat trout and northwestern pond turtle habitats from habitat degradation due to vegetation removal, herbicide application, soil disturbance, and runoff into Walker and Carson rivers. These impacts would be reduced through implementation of EMMs (Appendix C. EMMs BIO-35, CON-9, CON-19, HYDRO\_WQ-8, HYDRO\_WQ-22, and OPS-12). The effects of the Action Alternatives, when combined with past, present, and RFFAs, would result in degradation of localized habitat where the Action Alternatives cross the Walker and Carson rivers. Due to the size of the temporary and permanent disturbance of the Action Alternatives in comparison to the Lahontan cutthroat trout and northwestern pond turtle CEAA (less than one percent) and implementation of measures to

reduce impacts, the Action Alternatives would result in a negligible contribution to cumulative effects on the Lahontan cutthroat trout and northwestern pond turtle within the CEAA.

#### **Southwestern Willow Flycatcher, Yellow-Billed Cuckoo, and Yuma Ridgway's Rail**

The Action Alternatives would result in negligible impacts on yellow-billed cuckoo breeding behavior and breeding habitat where the three 345-kV transmission lines would cross the Carson River and the 525-kV line would cross the Walker River due to vegetation removal and inspections during the breeding season. The Action Alternatives may result in negligible impacts on migrating southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail during construction, O&M, and decommissioning from vegetation removal, human presence, and potential collision with transmission lines. These impacts would be reduced through implementation of EMMs (Appendix C. EMMs BIO-1, BIO-2, BIO-4 through BIO-6, BIO-10, BIO 11, BIO-14 through BIO-16, BIO-20, BIO-37, and BIO-46).

The effects of the Action Alternatives, when combined with past, present, and RFFAs, would result in negligible cumulative impacts on southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail. The Action Alternatives would disturb less than one percent of the southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail's CEAA and the Proponent would implement measures to reduce impacts to these federally list species and their habitats. The Action Alternatives would have a negligible contribution to cumulative effects on southwestern willow flycatcher, yellow-billed cuckoo, or Yuma Ridgway's rail and their respective habitats.

#### **Federally Listed Plant Species**

The Action Alternatives would not result in impacts on the Amargosa niterwort and the Ash Meadows gumplant because no suitable habitat is present within the federally listed plant species analysis area for these plants. Therefore, the Action Alternatives would have no contribution to cumulative effects on these plant species. The Action Alternatives would occur within suitable habitat for spring-loving centaury and would result in impacts on spring-loving centaury suitable habitat through habitat loss and degradation from introduction of noxious weeds and invasive plants species and habitat removal.

The Action Alternatives, and past, present, and the RFFAs would result in impacts to spring-loving centaury suitable habitat, individual plants, and local plant populations within the federally listed plant species CEAA due to the potential for individuals to be removed or destroyed and localized habitat degradation. The Action Alternatives would disturb approximately two percent of the federally listed plant CEAA. With the implementation of EMMs (Appendix C. EMMs BIO-2, BIO-22, BIO-38, BIO-34, BIO-35, BIO-41, BIO-42, and HYDRO\_WQ-22), the Action Alternatives' contribution to the cumulative effects on spring-loving centaury would be negligible. The Action Alternatives would result in impacts on the remaining four Ash Meadows plant species (Ash Meadows blazingstar, Ash Meadows ivesia, Ash Meadows milkvetch, and Ash Meadows sunray). Impacts would include loss of suitable habitat for Ash Meadows blazingstar, Ash Meadows ivesia, and Ash Meadows sunray, and Ash Meadows milkvetch and impacts on individual plants if avoidance is not possible.

The Action Alternatives, when combined with past, present, and the RFFAs would result in impacts to Ash Meadows blazingstar, Ash Meadows ivesia, Ash Meadows milkvetch, and Ash Meadows sunray suitable habitat, individual plants, and local plant populations within the federally listed plant species CEAA due to the potential for individuals to be removed or destroyed and because of localized habitat degradation. The Action Alternatives' contribution to these cumulative effects would be negligible with the implementation of EMMs (Appendix C. EMMs BIO-2, BIO-22, BIO-38, BIO-34, BIO-35, BIO-41, BIO-42, and HYDRO\_WQ-22) and the Integrated Weed Management Plan (COM Plan pending NV Energy n.d.) to avoid and minimize impacts.

### **No Action Alternative Contribution to Cumulative Impacts**

The RFFAs would be implemented, and other development and management trends and patterns would continue under the No Action Alternative. As previously described, these actions along with past and present projects would result in cumulative impacts to federally listed species. However, the GLWP would not be constructed and would not contribute to cumulative impacts to federally listed species.

#### **3.18.6.2 General Vegetation**

The major types of past, present, and RFFAs within the general vegetation CEAA that could contribute to cumulative impacts include, for example, mining; renewable energy development; and commercial, industrial, and residential development. There would be an estimated 92 RFFAs within the general vegetation CEAA. The RFFAs encompassing the most land would be the 36 solar RFFAs estimated at 205,288 acres, which would be six percent of the general vegetation CEAA. Effects from the RFFAs could result from permanent vegetation removal during construction activities and fragmentation of vegetation types. As vegetation communities become smaller and more fragmented due to ground disturbance, they become more susceptible to invasive species and noxious weeds. In combination, past, present, and RFFAs would result in cumulative impacts on general vegetation.

### **All Action Alternatives Contribution to Cumulative Impacts**

The Action Alternatives would result in the removal of vegetation and the potential for the introduction and spread of invasive plant species and noxious weeds. The implementation of EMMs (Appendix C. EMMs BIO-17, OPS-4, and REC-19) and the Integrated Weed Management Plan (COM Plan pending NV Energy n.d.) would decrease the impacts of the Action Alternatives on vegetation resources and potential introduction of invasive plant species and noxious weeds.

The effects of the Action Alternatives, when combined with past, present, and RFFAs, would result in cumulative impacts to local vegetation communities within the general vegetation CEAA. The Action Alternatives would disturb less than one percent of the general vegetation CEAA. The Action Alternatives would result in a negligible contribution to cumulative effects on general vegetation within the general vegetation CEAA with the implementation of the EMMs (Appendix C) and Integrated Weed Management Plan (COM Plan pending NV Energy n.d.).

### **No Action Alternative Contribution to Cumulative Impacts**

The RFFAs would be implemented and current uses and trends for the general vegetation resources would continue to occur under the No Action Alternative. As previously described, these actions along with past and present projects would result in cumulative impacts to general vegetation. However, the GLWP would not be constructed and would not contribute to cumulative impacts to general vegetation.

#### **3.18.6.3 Special Status Species**

The major past, present, and RFFAs that could contribute to cumulative impacts to special status species include, for example, renewable energy projects, transportation, utilities, mining, and conservation. With the exception of conservation projects, these types of projects may impact special status species or their respective habitats because of habitat removal, increased anthropogenic disturbance (e.g., noise, human presence), loss of connectivity, and vehicular collisions.



### **Special Status Plants**

There would be an estimated 92 RFFAs within the special status plants CEAA. The major types of RFFAs include roadway/transportation projects (23 RFFAs), utility projects (12 RFFAs), and mining (5 RFFAs). The RFFAs would also include 36 pending solar applications, primarily in the Amargosa Valley. Seven of the 14 special status plant species (black woolleypod, Churchill Narrows buckwheat, Clokey buckwheat, Las Vegas bearpoppy, Tonopah milkvetch, white bearpoppy, and white-margined beardtongue) would occur within the footprint of one or more RFFAs. The majority of impacts to special status plants would occur as a result of permanent habitat loss or degradation. The 36 pending solar applications (totaling an estimated 205,288 acres) would equate to six percent of the special status plant species CEAA.

The largest concentration of solar RFFAs just south of US 95 between the NNSS and the Ash Meadows NWR would occur within less than 0.5 miles of known populations of the ESA-petitioned white-margined beardtongue and may impact habitat for this species. Cumulatively, the Busted Butte 1 Solar and Orken Solar II may result in impacts to the Nye County population of white-margined beardtongue if disturbance to occupied habitat cannot be avoided. Impacts of the RFFAs may include habitat degradation (e.g., increased sedimentation, fugitive dust, introductions of invasives) throughout areas along US 95, habitat removal from construction of the RFFAs, alterations of behavior patterns of the species' pollinators and herbivores, and removal of additional pollinator habitat. Cumulatively, these RFFAs may result in a trend toward federal listing or loss of viability to the white-margined beardtongue if populations of this plant species cannot be avoided.

In addition to the white-margined beardtongue, the RFFAs could impact other special status plants from crushing by construction equipment or workers, degradation and fragmentation of habitat, and introduction of noxious weeds and invasive plants species. Special status plants may also be impacted by airborne dust created during ground-disturbing activities and equipment operation. Plant pollinator species could be impacted by vegetation clearing and other project-related disturbances that may reduce the species' ability to reproduce and colonize new areas. The RFFAs may include pre-construction surveys, avoidance buffers, and monitoring of special status plant populations to reduce impacts. Special status plants with a narrow habitat range or that are endemic to only a certain area would be particularly vulnerable to impacts from RFFAs. In combination, past, present, and RFFAs would result in cumulative impacts to special status plants and their respective habitats within the associated CEAA.

### **Special Status Terrestrial Wildlife**

The same estimated 92 RFFAs within the special status plant CEAA would be within the special status terrestrial wildlife CEAA. The majority of impacts to special status terrestrial wildlife would occur as a result of permanent habitat loss, fragmentation, and/or degradation due to urbanization, utility-scale renewable energy projects, transportation projects, and mining and mineral exploration.

Cumulative impacts to special status terrestrial wildlife populations would be greater where concentrations of RFFAs would occur, notably in the vicinity of Beatty, Big Smoky Valley, Amargosa Valley, Indian Springs Valley, and Las Vegas Valley. These areas include a total of 54 RFFAs, of which 27 are solar RFFAs, 16 are transportation projects, and 5 are mining projects. The Indian Springs and Big Smoky valleys, specifically, also include the nominations of the Cactus Springs and the Esmeralda/Fish Lake ACECs<sup>16</sup>, respectively.

An estimated 102,696 acres of solar RFFAs would occur within and adjacent to the Amargosa Valley. Populations of special status terrestrial wildlife that may be affected by habitat loss or direct impacts to

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<sup>16</sup> The BLM has completed the relevance and importance values reports for both nominations, no interim special management decision has been identified for these nominated areas (BLM 2024a, 2024d)

species due to these RFFAs include common chuckwalla, Great Basin collared lizard, and Mohave desert sidewinder, among others. Three RFFAs would occur near populations of Amargosa toad, which could be impacted if hazardous materials were released into waterways and if there were sustained drawdowns to surface water and/or in groundwater levels by the RFFAs. The five mining RFFAs near Beatty would occur near or within the Oasis Valley IBA. Special status terrestrial wildlife could be impacted by water use during mining operations if these activities reduce the amount of surface water and vegetation along the Amargosa River.

An estimated seven solar RFFAs would be located within five miles to the south-southwest of Big Dune and Lava Dune, the only two locations where five special status wildlife species (Amargosa miloderes weevil, Amargosa Valley darkling beetle, Ash Meadows dune scorpion, Giuliani's dune scarab, and large aegialian scarab) are known to occur. These seven solar RFFAs could form a nearly contiguous block where ground disturbance may occur and/or facilities constructed. Their construction would alter the sand transport and deposition to Big Dune and Lava Dune and impact the habitat available for these five special status wildlife species, potentially resulting in population-level effects. Cumulatively, these RFFAs may result in a trend toward federal listing or loss of viability of these five species if impacts associated with sand transport and deposition cannot be minimized or avoided during implementation of these pending solar projects. In combination, past, present, and RFFAs would result in cumulative impacts to special status terrestrial wildlife and their respective habitat within the CEAA.

The remaining RFFAs located between Goldfield and Reno would include 36 RFFAs generally near the Big Smoky Valley, Mason Valley, and in the vicinity of Reno and Carson City. These RFFAs would include solar (14 RFFAs), transportation (7 RFFAs), development (6 RFFAs), and utility projects (9 RFFAs). Populations of special status terrestrial wildlife that may be affected by habitat loss due to these RFFAs include bighorn sheep, greater short-horned lizard, pale kangaroo mouse, and northern leopard frog, among others.

#### **Special Status Aquatic Species**

There would be an estimated 154 RFFAs within the special status aquatic species CEAA. The majority of these projects do not occur within or adjacent to perennial water sources or aquatic habitats that support special status aquatic species. An estimated five RFFAs would occur near perennial water sources or aquatic habitats within the special status aquatic species CEAA, including two transmission line projects near the Walker River and three mining projects along the Amargosa River. The transmission line and mining exploration RFFAs could impact special status aquatic species by construction activities that degrade habitat from vegetation removal, sedimentation, and stormwater runoff into aquatic habitats. In combination, past, present, and RFFAs would result in cumulative impacts to special status aquatic and their respective habitat within the associated CEAA.

#### **Special Status Bird and Bat Species**

Cumulative impacts to special status bird and bat populations would be greater where concentrations of RFAAs occur, notably in the vicinity of Big Smoky, Amargosa, and Las Vegas valleys and the Reno/Sparks area. Cumulative impacts to populations would also be greater within high-value habitat areas such as IBAs. There are no known RFFAs within the Springs Mountains, Mount Grant, and Walker Lake IBAs and as a result, these IBAs would not be subject to cumulative impacts. Three mining RFAAs would occur near or within the Oasis Valley IBA. Migrating and resident birds and bats could be adversely impacted by water use during mining operations if these activities were to reduce the amount of surface water and hydrophytic vegetation along the Amargosa River.

The various solar project RFFAs may impact special status migratory birds, especially waterbirds and waterfowl, due to avian collisions within the facilities from the lake effect phenomenon from solar projects (Kosciuch et al. 2020; Penniman and Duffy 2021). These impacts would be greatest near water resources such as Walker Lake, Carson River, Walker River, and Amargosa River. In combination, past, present, and RFFAs would result in cumulative impacts to special status bird and bat species and their habitats within the associated CEAA.

## **All Action Alternatives Contribution to Cumulative Impacts**

### **Special Status Plants**

The Action Alternatives would result in negligible impacts to impacts to only the individuals of 64 special status plants due to the potential for individuals to be removed or destroyed and because of localized habitat degradation. Of the 59 special status plants that may be impacted by the Action Alternatives, 16 special status plants are known to occur within the footprint of one or more GLWP components. Individual plants and local plant populations of these 16 species would be impacted by construction, O&M, and decommissioning of the GLWP. The Proposed Action may result in impacts that would result in a trend toward federal listing or loss of viability of Churchill Narrows buckwheat and Tiehm's peppergrass because of the limited range of both species whereas impacts from other Action Alternatives that occur within habitat for these species (Carson River Transmission Alternatives A and C) would not result in a trend toward federal listing or loss of viability for these two plant species. Impacts to individuals and to local populations for the other 14 special status plant species have the potential to occur within the special status plants CEAA due to the potential for individuals to be removed or destroyed and localized habitat degradation.

The effects of the Action Alternatives, when combined with past, present, and RFFAs, would result in cumulative impacts to individuals and to local populations for most of the special status plants that have the potential to occur within the special status plants CEAA. The Action Alternatives would disturb less than one percent of the special status plants CEAA. The Action Alternatives would result in a negligible contribution to cumulative effects on special status plant species within the special status plants CEAA with the implementation of the EMMs (Appendix C. BIO-1, BIO-6, BIO-8, BIO-21, BIO-23, BIO-38, BIO-39, BIO-43) and the Integrated Weed Management Plan (COM Plan pending NV Energy n.d.).

### **Special Status Terrestrial Wildlife**

The Action Alternatives would result in undetectable impacts to impacts to only the individuals of 57 special status terrestrial wildlife species due to localized habitat loss and degradation, general disturbance due to increased human and vehicular activity, and increased predation. The Proposed Action may alter sand transport and deposition to Lava Dune, which is one of two locations where five special status terrestrial wildlife species (Amargosa miloderes weevil, Amargosa Valley darkling beetle, Ash Meadows dune scorpion, Giuliani's dune scarab, and large aegialian scarab) are known to occur. Construction of AS-2 (Proposed Action) in particular may interfere with sand transport and deposition to Lava Dune and may alter habitat for these five species. Construction of the AS-1 instead would avoid impacts to these five species at Lava Dune. Tubular H-frames constructed with implementation of the anti-perching/nesting mitigation may impact the special status terrestrial wildlife species habitat at Lava Dune more than the lattice structures that would otherwise be constructed.

The effects of the Action Alternatives, when combined with past, present, and RFFAs, would result in cumulative impacts to individuals and to local populations for special status terrestrial wildlife species that have the potential to occur within the special status terrestrial wildlife species CEAA. The Action Alternatives would disturb less than one percent of the special status terrestrial wildlife species CEAA. The

Action Alternatives would result in a negligible contribution to cumulative effects on special status terrestrial wildlife species within the special status terrestrial wildlife species CEAA with the implementation of EMMs (Appendix C. EMMs BIO-1 through BIO-9, BIO-11, BIO-14 through BIO-20, BIO-24 through BIO-31, BIO-34 through BIO-37, and BIO-48) and the BBCS (Appendix H).

#### **Special Status Aquatic Species**

The Action Alternatives would result in undetectable impacts to impacts only to individuals of six special status aquatic species, predominantly by localized habitat degradation. The effects of the Action Alternatives when combined with past, present, and RFFAs would result in degradation of localized habitat where aquatic habitats would be crossed. The RFFAs that involve treatment of invasive plant species and noxious weeds and aquatic habitat reclamation would reduce and/or avoid impacts to special status aquatic species.

The Action Alternatives would disturb less than one percent of the special status aquatic species CEAA. The Action Alternatives would result in a negligible contribution to cumulative effects on special status aquatic species within the special status aquatic species CEAA with the implementation of EMMs (Appendix C. EMMs BIO-35, CON-9, CON-13, HYDRO\_WQ-8, HYDRO\_WQ-22, and OPS-12).

#### **Special Status Bird and Bat Species**

The Action Alternatives would result in undetectable impacts to population-level impacts to 59 special status birds and bats due to localized habitat loss and degradation, general disturbance from increased human and vehicular activity, and increased predation. Specifically, RFFAs are not anticipated to result in cumulative impacts to pinyon jays because few RFFAs occur within the northwestern portion of the CEAA where most of the pinyon-juniper pinyon jay habitat is found.

The effects of the Action Alternatives when combined with past, present, and RFFAs, would result in cumulative impacts to individuals and local populations for the special status birds and bats that have the potential to occur within the special status bird and bat CEAA. The Action Alternatives would disturb less than one percent of the special status bird and bat CEAA. The Action Alternatives would result in a negligible contribution to cumulative effects on special status birds and bat species within the special status bird and bat CEAA with the implementation of EMMs (Appendix C. EMMs BIO-1 through BIO-5, BIO-11, BIO-15, BIO-16, BIO-18, BIO-20, BIO-25, BIO-34, BIO-35, and BIO-45) and the BBCS (Appendix H).

#### **No Action Alternative Contribution to Cumulative Impacts**

The RFFAs would be implemented, and other development and management trends and patterns would continue in the No Action Alternative. As previously described, these actions along with past and present projects would result in cumulative impacts to special status species. However, the GLWP would not be constructed and would not contribute to cumulative impacts to special status species.

#### **3.18.6.4 Golden Eagles**

The major types of past, present, and RFFAs that could contribute to cumulative impacts to bald and golden eagles include, for example, utility development, transportation, and forest health management activities (including prescribed burning). Transmission and distribution power lines associated with past, present and RFFAs without avian protection hardware could result in injury or death to golden eagles. Construction occurring during the golden eagle breeding season can interfere with eagle breeding activity and reduce parental care of nesting eagles, resulting in a decrease in productivity or nest abandonment. Past, present and RFFAs involving blasting have effects on golden eagles, often two miles out from an active nest. The noise and human presence associated with these activities may result in foraging eagles,

temporarily avoiding construction areas, and could temporarily displace eagles. Those RFFAs located on federal or state lands or that require federal funding would be subject to environmental review and required to incorporate measures to minimize those impacts. These measures may include timing work outside the golden eagle breeding season, constructing electrical power lines consistent with APLIC-suggested practices (APLIC 2006, 2012), and siting projects away from active golden eagle nests.

Currently, there would be 154 RFFAs within the golden eagle CEAA. These RFFAs would primarily occur in Clark, Esmeralda, and Nye counties and the majority of them would involve proposed transportation and renewable energy projects. The 48 transportation-related RFFAs would predominantly be located in the Reno and Las Vegas metropolitan areas. Golden eagles may be present in urban areas, though these areas do not typically provide high-quality habitat. However, increased roadways and transportation could increase eagle vehicle strike incidents. The 38 pending applications for solar projects would encompass an estimated 239,197 acres of land, which would be approximately 4 percent of the golden eagle CEAA. Golden eagles may fly over, perch, and forage near any of the solar RFFAs. Solar projects are normally sited on fairly level terrain not typically suitable for golden eagle nesting habitat but may provide high-quality foraging habitat. In combination, past, present, and RFFAs would result in cumulative impacts on golden eagles from construction activity and foraging habitat degradation. Approximately 85 percent of the golden eagle CEAA would encompass federally-administered lands and would have measures implemented to minimize potential effects to the eagles and their respective habitats such as breeding season restrictions, avoidance buffers, and monitoring.

#### **All Action Alternatives Contribution to Cumulative Impacts**

The Action Alternatives could result in changes in golden eagle habitat that are not anticipated to result in a decrease in productivity, nest abandonment, or eagle survival. Any impacts that would be associated with noise, human presence, injury from transmission wire collision, or impacts on eagle breeding activities would be minimized through implementation of EMMs (Appendix C. EMMs EAGLE-1 through EAGLE-10). The Action Alternatives, when combined with past, present, and RFFAs, would result in cumulative impacts on golden eagles within the associated CEAA. With the implementation of the measures noted above, the Action Alternatives would result in a negligible contribution to cumulative effects on golden eagles and their habitat within the associated CEAA.

#### **No Action Alternative Contribution to Cumulative Impacts**

The RFFAs would be implemented, and other development and management trends and patterns would continue in the No Action Alternative. As previously described, these actions along with past and present projects would result in cumulative impacts to golden eagles or their habitat. However, the GLWP would not be constructed and would not contribute to cumulative impacts to golden eagles.

#### **3.18.6.5 General Wildlife**

The major types of past, present, and RFFAs that could contribute to cumulative impacts to general wildlife include, for example, renewable energy development; mining and mineral exploration operations; and commercial, industrial, and residential development. There would be an estimated 92 RFFAs within the general wildlife CEAA. The RFFAs that encompass the most land area would be the 36 pending solar project applications estimated at 205,288 acres, which would be approximately 6 percent of the general wildlife CEAA. The solar and transportation RFFAs would primarily be located in the Amargosa Valley, Big Smoky Valley, and along the Carson River basin. Two of the RFFAs within the general wildlife CEAA are nominations proposing to designate an estimated 58,000-acre Cactus Springs ACEC near Indian Springs and

849,170-acre Esmeralda/Fish Lake ACEC in the vicinity of Silver Peak/Montezuma Range. If designated through a land use planning process and management decision, these two ACECs would exclude solar development if determined necessary to protect the areas relevance and importance values and could also benefit habitat for general wildlife and movement corridors for big game ungulate species (i.e., bighorn sheep and mule deer).

The vast majority of threats to general wildlife and/or their habitats are associated with actions that could result in vehicle mortality, permanent habitat loss across large areas, and fragmented and degraded habitats and movement corridors. The RFFAs would result in increases in noise, human presence, and nighttime light pollution that would largely result in behavioral changes in general wildlife including dispersal from their local home ranges. Increases in dispersal from home ranges can lead to increases in mortality to general wildlife from avoidance to known food and water resources, as well as increased vulnerability to predation from increases in prey detection as a consequence of expanded dispersal from their usual home ranges. The habitat loss and fragmentation due to the 36 solar RFFAs, primarily within the Amargosa and Big Smokey valleys, is anticipated to result in impacts to general wildlife habitat, winter ranges, and movement corridors for big game species. In combination, past, present, and RFFAs would result in cumulative impacts to the general wildlife and their respective movement corridors within the associated CEAA.

#### **All Action Alternatives Contribution to Cumulative Impacts**

The implementation of the Action Alternatives would result in vehicle mortality, permanent habitat loss across large areas, and fragmented and degraded habitats. The anti-perching/nesting mitigation measure would decrease the impacts of the GLWP on general wildlife prey species.

The effects of the Action Alternatives when combined with past, present, and RFFAs would result in cumulative impacts to individuals and local populations within the general wildlife CEAA. The Action Alternatives would disturb less than one percent of the general wildlife CEAA. The Action Alternatives would result in a negligible contribution to cumulative effects on general wildlife within the general wildlife CEAA with the implementation of the EMMs (Appendix C. EMMs MDT-1 through MDT-5) and the BBCS (Appendix H), the Integrated Weed Management Plan (COM Plan pending NV Energy n.d.), and the Raven Management Plan (Appendix G).

#### **No Action Alternative Contribution to Cumulative Impacts**

The RFFAs would be implemented, and other development and management trends and patterns would continue under the No Action Alternative. As previously described, these actions along with past and present projects would result in cumulative impacts to general wildlife. However, the GLWP would not be constructed and would not contribute to cumulative impacts to general wildlife.

#### **3.18.6.6 Cultural Resources**

Approximately 3 percent of the approximately 1,689,405-acre cultural resources CEAA has been subject to a cultural resources inventory (the APE). It is likely that there are additional undocumented cultural resources within the CEAA. The major types of past, present, and RFFAs within the cultural resources CEAA that could contribute to cumulative impacts to cultural resources include commercial, industrial, and residential development, transportation, utilities, mining, and renewable energy developments. There would be an estimated 65 RFFAs within the cultural resources CEAA. The transportation, communication, and community development RFFAs would occur within or near the metropolitan areas of Reno and Las

Vegas. The majority of these RFFAs would take place within previously disturbed areas and would not be expected to have substantial impacts on cultural resources.

The RFFAs encompassing the most land area would be the 33 solar RFFAs, estimated at 132,366 acres, which would encompass 8 percent of the cultural resources CEAA. These solar RFFAs are utility-scale projects that would be in undeveloped areas and could have direct impacts on cultural resources through physical or visual disturbance. Indirect impacts to cultural resources could include increased access to archaeological sites through improved or new roads that lead to an increased risk of vandalism.

Any RFFAs on federal lands or using federal funds would be individually subject to compliance with Section 106 of the NHPA. Compliance with Section 106 ensures avoidance, minimization, or mitigation of impacts to cultural resources. If disturbance is unavoidable and results in adverse impacts, recovery and preservation of artifacts and information and other potential mitigation measures would be implemented in accordance with Section 106 consultation. In addition, two of the RFFAs are nominations proposing to designate the Cactus Springs ACEC near Indian Springs and Esmeralda/Fish Lake ACEC in the vicinity of Silver Peak/Montezuma Range. The non-governmental organizations that nominated the ACECs stated that the intent of their ACEC nominations is to preserve natural, cultural, paleontological, and visual resources. In combination, past, present, and RFFAs would result in cumulative impacts to cultural resources within the cultural resources CEAA.

#### **All Action Alternatives Contribution to Cumulative Impacts**

The cultural resources that would be directly affected by the Action Alternatives are a small fraction of the cultural resources within the CEAA, and impacts on these resources would be avoided, minimized, or mitigated to the extent practicable. The Action Alternatives are anticipated to result in impacts to cultural resources that would require mitigation.

The effects of the Action Alternatives, when combined with past, present, and RFFAs, would result in cumulative impacts to cultural resources within the cultural resources CEAA. The Action Alternatives would disturb less than one percent of the cultural resources CEAA and would be subject to compliance with Section 106 of the NHPA on federal lands. Therefore, the Action Alternatives would have a negligible contribution to cumulative effects on cultural resources within the cultural resources CEAA.

#### **No Action Alternative Contribution to Cumulative Impacts**

The RFFAs would be implemented and other development and management trends and patterns would continue under the No Action Alternative. As previously described, these actions along with past and present projects would result in cumulative impacts to cultural resources. However, the GLWP would not be constructed and would not contribute to cumulative impacts to cultural resources within the cultural resources CEAA.

#### **3.18.6.7 Native American Religious Concerns**

The major types of past, present, and RFFAs within the Native American religious concerns CEAA that could contribute to cumulative impacts to Native American religious concerns include, for example, renewable energy projects; utilities; communication towers; and commercial, industrial, and residential development. There would be an estimated 63 RFFAs within the Native American religious concerns CEAA. The transportation, utilities, and community development RFFAs would occur within or near the metropolitan areas of Reno and Las Vegas. The majority of these RFFAs would take place within previously disturbed areas and would not be expected to have substantial impacts on Native American religious concerns.

There are 33 solar RFFAs within the Native American religious concerns CEAA, which would encompass 8 percent (estimated at 132,366 acres) of the Native American religious concerns CEAA and would represent the most land area of all the RFFAs. These solar RFFAs are utility-scale projects that would be in undeveloped areas and could have direct impacts on Native American religious concerns, including modern prayer locations, archaeological sites with rock features, stacked rocks, rock rings, rock placements, tonal rocks, and rock writing. Direct impacts could include physical or visual disturbance and restricted access to locations of cultural or spiritual significance. Indirect impacts could include increased access to sites through improved or new roads that lead to a potential increase in vandalism or noise. Sites containing petroglyphs were also identified as spiritually important and are considered cultural resources and therefore addressed through the Section 106 process.

Any RFFAs on federal lands or using federal funds would be individually subject to compliance with NEPA and Section 106 of the NHPA. Compliance helps to ensure avoidance, minimization, or mitigation of impacts to Native American religious concerns. In addition, two of the RFFAs are nominations proposing to designate Cactus Springs ACEC near Indian Springs and Esmeralda/Fish Lake ACEC in the vicinity of Silver Peak/Montezuma Range. The non-governmental organizations that nominated the ACECs stated that the intent of their ACEC nominations is to preserve natural, cultural, paleontological, and visual resources. In combination, past, present, and RFFAs would result in cumulative impacts to Native American religious concerns within the Native American religious concerns CEAA.

#### **All Action Alternatives Contribution to Cumulative Impacts**

The Action Alternatives are anticipated to result in impacts to Native American religious concerns that would require coordination during design and micro-siting to avoid or minimize direct and indirect impacts, where feasible; provide workers with cultural sensitivity training; and accommodate Tribal monitors. The BLM is conducting ongoing government-to-government consultation with Tribes to determine if any of the transmission line structures would have physical or visual effects on areas of Native American religious concerns and identify ways to avoid, minimize, or mitigate impacts.

The effects of the Action Alternatives, when combined with past, present, and RFFAs, would result in cumulative impacts to Native American religious concerns within the Native American religious concerns CEAA. The Action Alternatives would disturb less than one percent of the Native American religious concerns CEAA and would be subject to compliance with NEPA and Section 106 of the NHPA on federal lands. Therefore, the Action Alternatives would have a negligible contribution to cumulative effects on Native American religious concerns within the Native American religious concerns CEAA.

#### **No Action Alternative Contribution to Cumulative Impacts**

The RFFAs would be implemented, and other development and management trends and patterns would continue under the No Action Alternative. As previously described, these actions along with past and present projects would result in cumulative impacts to Native American religious concerns. However, the GLWP would not be constructed and would not contribute to cumulative impacts to Native American religious concerns within the Native American religious concerns CEAA.

#### **3.18.6.8 Paleontological Resources**

The paleontological resources CEAA is defined as very high, high, and moderate PFYC areas crossed by the Action Alternatives transmission lines. This CEAA totals approximately 985,113 acres and would be concentrated in three general locations: Las Vegas Valley/Spring Mountains, Silver Peak/Pilot Peak, and



the Virginia Range areas. Approximately one percent of the paleontological resources CEAA has been subject to an inventory. There are likely additional undocumented paleontological resources within the paleontological resources CEAA. Similar to cultural resources, the major types of past, present, and RFFAs within the paleontological resources CEAA that could contribute cumulatively to impacts to paleontological resources include projects involving ground-disturbing activities such as commercial, industrial, and residential development; mining; and renewable energy developments. These projects may impact paleontological resources through physical disturbance or destruction or increased access to fossils through improved or new roads that lead to an increased risk of vandalism. The PRPA directs federal land management agencies to manage and protect paleontological resources on their lands. Projects on federal lands or using federal funding would have to consider impacts to paleontological resources and measures to avoid, reduce or mitigate impacts on important paleontological resources are likely to be implemented.

There would be an estimated 20 RFFAs within the paleontological resources CEAA and 14 would be subject to federal oversight. The 9 solar RFFAs would encompass a total estimate of 1,886 acres or less than one percent of the CEAA. These would create ground disturbance on undeveloped BLM-administered lands in areas of very high, high, and moderate potential for paleontological resources. The approximately 849,170-acre nominated Esmeralda/Fish Lake ACEC, if designated through a land use planning process and management decision, would exclude solar development, if necessary to protect the areas relevance and importance values, benefiting the protection of watersheds, springs, playas, visual resources, and recreation over the long-term. Impacts on paleontological resources from the renewable energy RFFAs would be avoided or minimized to the maximum extent practicable through project design, with structure placements and roads avoiding these sensitive resources. In combination, past, present, and RFFAs would result in cumulative impacts to paleontological resources within the associated CEAA.

#### **All Action Alternatives Contribution to Cumulative Impacts**

The paleontological resources that would be affected by the Action Alternatives would be a small percentage of the paleontological resources within the paleontological resources CEAA, and impacts on those resources would be avoided, minimized, or mitigated to the extent practicable. A paleontological monitoring and mitigation plan and worker environmental awareness program would be developed and implemented for the GLWP.

The effects of the Action Alternatives, when combined with past, present, and RFFAs, would result cumulative impacts to paleontological resources within the associated CEAA. The Action Alternatives would affect less than one percent of the paleontological resources CEAA and would also be subject to compliance with the PRPA. Therefore, the Action Alternatives would result in negligible contribution to any cumulative effects on paleontological resources within the associated CEAA.

#### **No Action Alternative Contribution to Cumulative Impacts**

The RFFAs would be implemented, and other development and management trends and patterns would continue under the No Action Alternative. As previously described, these actions along with past and present projects would result in cumulative impacts to paleontological resources. However, the GLWP would not be constructed and would not contribute to cumulative impacts to paleontological resources within the paleontological resources CEAA.

### 3.18.6.9 Earth Resources

Overall, past, present, and RFFA activities would have no means of influencing geological hazards. Reasonably foreseeable future actions that would likely be affected by geological hazards include transmission lines, oil and gas pipelines, and power generation. The engineering design to address geologic hazards would be specific to each RFFA. As more projects are sited to avoid geological hazards, suitable siting locations may become increasingly occupied, forcing RFFAs toward areas of greater geological hazard. Construction of RFFAs could affect slope stability for other nearby projects located upslope or down slope. In general, local and state building requirements and federal regulations to minimize encroachment on floodways would be adequate to prevent or substantially reduce cumulative impacts that may be created by geologic hazards.

Seven solar RFFAs would be located within approximately five miles to the south-southwest of Big Dune and Lava Dune, the two notable geologic sand dune features within the geology/mineral resource analysis area. The Orken, Amber Clearway, Titus Canyon, Virgo, Busted Butte, Jackpot, and Amargosa West solar RFFAs would cover an estimated 35,306 acres (some of the solar facilities overlap). The solar RFFAs would have a cumulative effect on Lava Dune's sand transport and deposition because of the location and area of disturbance of the solar facilities in the path of the strongest winds that provide the source of the dune's sand. These RFFAs could also affect Big Dune's sand transport and deposition as well.

Existing actions that affect soil stability and quality include livestock grazing, agricultural production on irrigated lands, ROWs for roads, pipelines, oil and gas developments, and vegetation treatments. The most prevalent indicator of cumulative soil loss throughout the soil resources CEAA is disturbance to the soil's surface. Land use activities such as mining, ranching, roads, solar projects, transmission lines, and OHV use have all shaped the current condition of the soil resources. Any disturbance to surface soils through grading or other ground disturbance can potentially result in accelerated erosion at any one project site. There would be 26 solar RFFAs that would disturb approximately 11 percent of the soils CEAA and have the potential to impact soils with high wind and water erosion rates or farmlands of statewide importance, if irrigated. The largest of the solar RFFAs would potentially disturb an estimated 15,148 acres.

Cumulative effects to mineral resources would primarily be associated with ground disturbance and surface occupation of mineral resource areas that would remove or restrict access to mineral resources. Examples of RFFAs that may have cumulative effects on mineral resources include solar and mining RFFAs. Sixteen solar RFFAs (an estimated 26,508 acres) and 34 other RFFAs would cumulatively affect approximately one percent of the mineral resources CEAA. Of the 34 other RFFAs, Crown, Mother Load, and Brown and Gold quarries are proposed mining operations that would add to the cumulative effects to mineral resources. Because active mining encompasses only a small fraction of the respective mining districts and the RFFAs are likely to cover only a fraction of the mining districts they cross, there would be no notable changes in the baseline conditions of local geology or access to mineral resources from RFFAs.

The effects of the GLWP, when combined with past, present, and RFFAs would result in negligible cumulative impacts to earth resources within the mineral and soil resources CEAs with the adherence to agencies' regulations and the implementation of measures to minimize the effects of geological hazards and wind and water erosion.

#### **All Action Alternatives Contribution to Cumulative Impacts**

Through implementation of EMMs (Appendix C. EMMs CON-12, CON-14, CON-17, DECOM-3, HYDRO\_WQ-11, HYDRO\_WQ-13, HYDRO\_WQ-15, and HYDRO\_WQ-19), the risk of damage from seismicity,

landslides, flood damage or subsidence from the Action Alternatives would be reduced. Construction of the Action Alternatives may impact the sand transport and deposition to Lava Dune because the GLWP components would be located along the south side of US 95.

Approximately 37 percent of the temporary ROW area and 32 percent of the permanent ROW area would not be physically disturbed by the Action Alternatives. There would be long-term loss of soil productivity on acres not reclaimed during the life of the GLWP. Impacts to soil quality may occur over the long-term due to the slow recovery of soils in arid and semi-arid environments. Other soils disturbed but reclaimed after construction or as part of decommissioning would likely have long-term loss of soil productivity that would improve over time due to reclamation efforts. Implementation of EMMs (Appendix C. EMMs GEO\_SOIL-1 through GEO\_SOIL-10, CON-14, and HYDRO\_WQ-19) would minimize impacts to soil resources.

Transmission lines typically have little impact on mining operations. Span lengths typically allow access to minerals between spans. While lines can and are routinely moved to accommodate development, the cost of relocating lines is covered by the individuals or entities requesting the relocation. The GLWP ROWs would be on the surface only and would not affect any mining claims or entries unless the presence of the line limits access to develop the claim or occurrence during construction. Operations and maintenance of the Action Alternatives would not impact active mines. The location of a valid mining claim gives a mining claimant possessory right to the lands superior to any subsequent appropriations.

The effects of the Action Alternatives, when combined with past, present, and RFFAs, would result in cumulative effects on earth resources. The Action Alternatives would disturb less than one percent of the mineral and soil resources CEAs. With the implementation of the EMMs noted above, the Action Alternatives would result in a negligible contribution to cumulative effects on earth resources within the respective CEAs.

#### **No Action Alternative Contribution to Cumulative Impacts**

The RFFAs would be implemented, and other development and management trends and patterns would continue in the No Action Alternative. As previously described, these actions along with past and present projects would result in cumulative impacts to earth resources. However, the GLWP would not be constructed and would not contribute to cumulative impacts to earth resources within the earth resources CEAA.

#### **3.18.6.10 Air Quality, Climate Change, and Greenhouse Gas Emissions**

The air quality, climate change, and GHG emissions CEAA (collectively referred to as the air CEAA) is defined as the boundaries of the seven counties where the GLWP would be located. The cumulative impact analysis for air quality considers the NAAQS set by the EPA. The cumulative impact analysis for climate change and GHG emissions includes consideration of state and national GHG emission-reduction efforts. Current federal and state practices include the inventory of GHG emissions to compare the relative contribution of different emission sources and GHG emissions to climate change. Within Nevada, CO<sub>2</sub> emissions from fossil fuel combustion totaled approximately 36.4 MT in 2017. Of the 36.4 MT, activities related to the generation of electric power accounted for approximately 12.9 MT of CO<sub>2</sub> emitted in Nevada (NDEP 2020).

The major types of past, present, and RFFAs within the air CEAA that could contribute to cumulative impacts include projects for commercial, industrial, and residential development; transportation; and

renewable energy development. These types of projects may directly impact air quality, climate change, and GHG emissions from construction activities. Certain developments, such as industrial facilities and transportation, may also impact air quality during O&M but to a lesser degree than during construction. There would be an estimated 207 RFFAs within the air CEAA. The RFFAs that would encompass the most land would be the 55 pending applications for solar projects estimated at 313,710 acres, which would be one percent of the air CEAA. Effects from the RFFAs could result from fugitive dust and GHG emissions during construction activities. Cumulative GHG emissions would be offset in the long-term by the use of renewable energy resources.

#### **All Action Alternatives Contribution to Cumulative Impacts**

The implementation of the Action Alternatives would result in negligible impacts to air quality, climate change, and GHG emissions from construction, O&M, and decommissioning. Construction would result in temporary GHG emissions from fuel combustion and fugitive dust generated by construction and maintenance vehicles and worker travel. Operational emissions of GHGs are estimated to be less than 3,500 metric tons of CO<sub>2</sub> for the life of the project, which would be well below the permitting threshold. Anticipated emissions and dust generation would be dispersed quickly and have no measurable effect and would not be sufficient to trend toward NAAQS nonattainment. In addition, implementation of the Action Alternatives would allow for greater transmission of renewable energy and contribute to the state and federal efforts to minimize GHG emissions and mitigate climate change.

The effects of the GLWP, when combined with past, present, and RFFAs would result in negligible cumulative impacts on air quality, climate change, and GHG emissions within the air CEAA. The GLWP would result in a negligible contribution to cumulative effects on air quality, climate change, and GHG emissions within the air CEAA.

#### **No Action Alternative Contribution to Cumulative Impacts**

The RFFAs would be implemented, and other development and management trends and patterns would continue under the No Action Alternative. As previously described, these actions along with past and present projects would result in cumulative impacts to air quality, climate change, and GHG emissions. However, the GLWP would not be constructed and would not contribute to cumulative impacts to air quality, climate change, and GHG emissions within the associated CEAA.

#### **3.18.6.11 Special Designation Areas**

Cumulative impacts to the specific areas of the SDAs including inventoried LWC units would be limited to impacts caused by other potential projects that could cross or be in close proximity to the same SDAs as the GLWP. Cumulative impacts to SDAs during the construction and O&M phases of RFFAs would be on a case-by-case basis, based on the type of designation, the proximity of construction, and potential measures implemented to reduce these impacts. For example, access roads could be minimized if facilities were to share infrastructure, resulting in fewer disturbances near or within an SDA. There would be no cumulative effects to Wilderness Areas or WSAs, due to their special designation and specific management prescriptions that include the avoidance or exclusion of some activities or uses (i.e., ROW leases or grants) within their boundaries. Impacts would occur where construction and O&M activities associated with past, present, and RFFAs such as mines, roadways, vegetation removal, and renewable energy facilities would occur within the immediate FG (approximately 0.5 miles) of the SDAs. The close proximity of these activities would attract attention, reduce the level of naturalness, and create cumulative visual impacts.

Examples of RFFAs that would have cumulative effects on SDAs include 26 pending applications for solar projects (an estimated 102,964 acres) and 117 other RFFAs (an estimated 138,557 acres) would cumulatively affect up to 4 percent of the SDA CEAA. The 117 other RFFAs include mining projects, transportation-related projects, and other projects ranging from residential development to transmission lines to a nominated ACEC (58,000 acres).

There are 188 inventoried LWC units in the LWC CEAA (approximately 3,659,079 acres), of which 5 units would be affected by the construction of built structures, roads, and mining operations associated with 11 RFFAs. The RFFAs that would have the greatest cumulative effects on five existing inventoried LWC units (approximately 106,649.2 acres) include seven solar projects (an estimated 13,082 acres) and the Rhyolite Ridge Lithium-Boron Project (an estimated 4,640 acres). These eight RFFAs would represent a reduction of less than one percent of the existing inventoried LWC units within the LWC CEAA. Specifically, these RFFAs would result in a reduction of 17 percent of the three inventoried LWC units crossed in the TFO (estimated 86,923.6 acres) and 8 percent of the two inventoried LWC units crossed in the CCDO (estimated 39,725.6 acres). The seven solar RFFAs and one mining RFFA would not subdivide any inventoried LWC units into areas that are less than the 5,000-acre minimum size threshold for a LWC unit.

During the NEPA process for the GLWP, two ACEC nominations were received by the BLM within the GLWP area. The Cactus Springs ACEC west of Indian Springs, Nevada, was nominated in September 2022 during the variance process for the Bonanza Solar Project, and the Esmeralda/Fish Lake ACEC, west of Tonopah, was nominated in August 2023 during the comment period for the GLWP. The designation of ACECs is not within the scope of GLWP and would not meet the purpose and need.

The combined past, present, and RFFAs would result in negligible cumulative impacts to SDAs within the SDA and LWC CEAs with adherence to the respective agencies' management plans and policies prior to implementation. In addition, the combination, past, present, and RFFAs would have less than one percent potential disturbance to both the SDA and LWC.

### **All Action Alternatives Contribution to Cumulative Impacts**

The Action Alternatives would cross TUSK, Las Vegas Valley SRMA, Walker Lake SRMA, Southern Nevada ERMA, and Bullfrog-Beatty ERMA as well as inventoried LWC units. The construction of the GLWP would not alter the management of the TUSK, SRMAs, or ERMAs. The impacts from construction-related noise, dust, and increased vehicles in the viewshed would be negligible due to the small portion of these SDAs that would be impacted. Potential indirect impacts from construction activities associated with the Action Alternatives would include increased noise, dust, and vehicular traffic within the temporary ROW proportional to distance and visibility from adjacent SDAs. This has the potential to disturb and displace recreation users and wildlife within SDAs and interrupt recreation access. Maintenance roads constructed would provide improved access to the GLWP area and recreation opportunities may increase accordingly. These roads would be permanent, open to the public, and may also contribute indirectly to the creation of social (unauthorized) roads and trails within an SDA. This type of impact would most likely occur where the permanent ROW is relatively close to the SDA boundary, such as at the Desert NWR and Red Rock Canyon NCA.

There would be impacts from construction and O&M activities where the Action Alternatives would intersect inventoried LWC units that would temporarily impact opportunities for solitude, primitive and unconfined recreation, and feeling the effect of naturalness in the immediate area. Motorized travel along the ROW (for inspection, maintenance, and vegetation clearing) that occurs adjacent to a given inventoried LWC unit would result in sounds that would degrade the natural setting and affect

opportunities for solitude and primitive recreation. In a given inventoried LWC unit intersected by the GLWP, O&M-related sounds (including helicopters) would occur intermittently for the life of the GLWP. Sounds and noise levels would be site-specific, would temporarily impact wilderness characteristics, and would not persist for extended periods of time.

Cumulatively, the effects of the GLWP, when combined with past, present, and RFFAs would result in negligible cumulative impacts to SDAs within the CEAA with adherence to the respective agencies' management plans and policies prior to implementation with the adherence to respective agency management plans prior to implementation. The combination, past, present, and RFFAs with the GLWP would have less than one percent potential disturbance to the SDAs within the CEAA. The GLWP would result in a negligible contribution to cumulative effects on SDAs within the SDA CEAA.

#### **No Action Alternative Contribution to Cumulative Impacts**

There would be no contribution to cumulative impacts to SDAs because the No Action Alternative would not result in any impacts. As such, the No Action Alternative is not analyzed for cumulative impacts to SDAs.

#### **3.18.6.12 National Historic Trails and Trails Under Study for Congressional Designation**

The major types of past, present, and RFFAs that could contribute to cumulative impacts to NHTs and Trails Under Study for Congressional Designation include renewable energy projects; transmission lines; communication towers; and commercial, industrial, and residential development. These actions generally result in changes to the natural landscape to a more developed setting. There would be an estimated 43 RFFAs within the NHT CEAA. The majority of these RFFAs are transportation and general development projects in the existing urbanized settings of the Reno and Las Vegas metropolitan areas. Three RFFAs—Dry Lake East Energy Center Solar Project, Pine Nut Solar, and Yerington Anaconda Mine Site Disposal—may contribute to overall cumulative impacts to NHT resources. In total, these proposed projects would encompass less than one percent (4,427 acres) of the NHT CEAA. Future BLM efforts, such as the Eldorado Dam Decommissioning and the Clark County Desert Conservation Program projects, would help to implement measures to reduce impacts to NHT landscape elements. The purpose of these projects is to remediate previous impacts to the landscape and visual setting. In addition to the RFFAs, wildland fire would also create changes in the visual setting long-term, depending on the scale and intensity of the wildfire. In combination, past, present, and RFFAs would result in cumulative impacts to NHTs and Trails Under Study for Congressional Designation.

#### **All Action Alternatives Contribution to Cumulative Impacts**

The range of impacts to NHTs and Trails Under Study for Congressional Designation by the Action Alternatives would depend on the visibility of the GLWP components from the NHT alignments. The Action Alternatives would alter the landscape elements predominantly through incremental modification to the associated visual, historic, and desired recreation settings of the NHTs and Trails Under Study for Congressional Designation. The effects of the Action Alternatives, when combined with past, present, and RFFAs, would result in cumulative impacts to NHTs and Trails Under Study for Congressional Designation within the NHT CEAA. The Action Alternatives would negligibly contribute to the cumulative effects to NHTs and Trails Under Study for Congressional Designation because of the overall limited areas where the GLWP would be visible within the NHT CEAA.

### **No Action Alternative Contribution to Cumulative Impacts**

The RFFAs would be implemented and other development and management trends and patterns would continue under the No Action Alternative. As previously described, these actions along with past and present projects would result in cumulative impacts to NHTs and Trails Under Study for Congressional Designation. However, the GLWP would not be constructed and would not contribute to cumulative impacts to NHTs and Trails Under Study for Congressional Designation within the NHT CEAA.

#### **3.18.6.13 Land Use and Realty**

Past and present actions have established the current land use patterns within the land use and realty CEAA. The past and present actions have introduced livestock grazing, renewable energy, electrical transmission, mining operations, and transportation system improvement uses throughout the land use and realty CEAA, with commercial and residential uses near the Las Vegas, North Las Vegas, Reno, and Sparks metropolitan areas. The types of RFFAs that could contribute to cumulative impacts on existing land use and realty authorizations include the renewable energy projects, mining operations, utilities, and development projects.

Within the land use and realty CEAA, the BLM has received ROW applications for 55 solar projects on an estimated 313,710 acres of BLM-administered lands. Sixty-six percent (estimated 207,822 acres) of the solar RFFAs would be located in the SNDO, 30 percent (estimated 93,033 acres) in BMDO, and 4 percent (estimated 12,786 acres) in CCDO. These solar RFFAs would represent an estimated 2 percent of the BLM-administered lands in SNDO (9,905,816 acres), and less than 1 percent of the BLM-administered lands in BMDO (13,477,204 acres) and CCDO (8,940,783 acres). Of these 55 pending solar projects, 19 would be located in Clark County and 20 would be located in Nye County. Both counties' comprehensive land use plans recognize their suitability for renewable energy projects and encourage responsible development of renewable energy projects (Clark County 2021; Nye County 2011).

The past, present, and RFFA land uses in the CEAA have and would continue to have a direct effect on the conversion of lands from one use to another (e.g., undeveloped land that is converted to a transmission line ROW or solar energy facility). As development occurs, the rural environment on private lands would become increasingly more residential, commercial, and/or industrial. The cumulative impact of these developments would generally be consistent with the long-term management planning tools such as the numerous state, county, and municipal-level long-range planning documents and the BLM RMPs. In addition, past and present actions include the establishment of DOD land, operations at Nellis and Creech AFBs, and the NTTR. Because Nellis and Creech AFBs and the NTTR are vital military operations for national security and a vital asset to Nevada, any RFFAs permitted and constructed would be limited to minimal disruption to these military operations.

Land use in the CEAA has also been cumulatively affected by development of energy-related projects and the associated transportation and utility infrastructure throughout the areas built to support this type of development. Continued renewable energy development would result in the permanent conversion of undeveloped land to energy production use. Development projects may have impacts during construction when additional truck and heavy equipment traffic is added to local traffic where the infrastructure may not have the capacity to accommodate or withstand the volume or type of vehicles.

The development of renewable energy and mining operation RFFAs would also remove areas from active grazing and recreation opportunities. These types of RFFAs on BLM-administered lands within the land use and realty CEAA would create a cumulative impact on available rangeland, potentially resulting in a

reduction in grazing leases. The cumulative regional impact on rangeland and recreation would be negligible because of the vast amount of land currently available for grazing and recreation within the SNDO specifically and within the land use and realty CEAA.

Of the 262 RFFAs identified in the land use and realty CEAA, the 55 solar RFFAs would collectively have the greatest impact on future land patterns as well as the potential to encumber future easements, ROWs, mining claims, and SUPs. The number of solar RFFAs and the estimated total of 313,710 acres of BLM-administered lands that may be authorized for this single use is notable compared to the number and scale of past and present renewable energy facilities. The proposed Orken Solar facility would overlap with the Big Dune SRMA. Three solar RFFAs would be located within the nominated Cactus Springs ACEC and nine others would be located within the nominated Esmeralda/Fish Lake ACEC. In addition, dispersed recreation including hunting, OHV use, and hiking would be eliminated within the fenced area of each renewable energy facility. Future solar energy land use represents approximately one percent of the CEAA and one percent of the BLM-administered lands in BMDO, CCDO, and SNDO collectively (approximately 32,323,703 acres). In combination, past, present, and RFFAs would result in cumulative impacts to land uses and land use patterns as well as realty authorizations within the land use and realty CEAA.

### **All Action Alternatives Contribution to Cumulative Impacts**

The Action Alternatives would provide increased access for recreational opportunities and could alter the OHV use patterns in the land use and realty CEAA. The construction of new and improved access roads may increase the potential for unauthorized OHV use and illegal dumping. This would result in an increased chance for social (unauthorized) and user-created route proliferation. An increase in social (unauthorized) and user-created trails would conflict with federal land management agencies' OHV-use strategies, create management challenges, and potentially increase user conflicts. Mineral resources may exist directly underneath the permanent ROW, and some types of resources would not be practically accessible for the life of GLWP. Mineable underground deposits under the ROW may be subject to reduced recovery since a lower extraction rate may have to be applied to maintain support for surface facilities. Some of the Action Alternatives would impact military operations in Range 77A restricted airspace and military training operations in the proposed legislative lands transfer and along the western boundary of the Nellis AFB Small Arms Range. The Proposed Action would conflict with MTRs and airspace restrictions that include both visual and instrument routes for the NTTR. The Action Alternatives would alter current land use but would not eliminate future use of the lands. The Action Alternative's modification of WVEC 18-224 would result in the relocation/re-alignment becoming a preferred route for infrastructure/energy transport. The Action Alternatives would increase WVEC 18-224 from approximately 3.1 miles to approximately 21.9 miles depending on the alternative. The collocation of the GLWP within the WVEC would benefit land uses by consolidating the overall impact of utility infrastructure. The effects of the Action Alternatives, when combined with past, present, and RFFAs, would result in cumulative impacts to land uses and realty authorizations within the land use and realty CEAA. The Action Alternatives would contribute to the cumulative effects on local land use and realty authorizations within the land use and realty CEAA.

### **No Action Alternative Contribution to Cumulative Impacts**

The RFFAs would be implemented, and other development and management trends and patterns would continue under the No Action Alternative. As previously described, these actions along with past and present projects would result in cumulative impacts to land use and realty authorizations. However, the



GLWP would not be constructed and would not contribute to cumulative impacts to land use and realty authorization within the land use and realty CEAA.

#### **3.18.6.14 Water Resources**

The CEAs for cumulative impacts to water resources are HUC-8 watersheds for the surface water and groundwater CEAA and HUC-10 watersheds for the wetlands and riparian areas CEAA (collectively referred to as the water resources CEAs). With respect to water resources, impacts can be cumulative if they occur nearby in the same watershed or on the same waterbody and there is a project-related impact in that same watershed or waterbody.

Cumulative effects to water resources may result from past, present, and RFFAs that would require increased usage of groundwater or surface waters and impact wetlands and riparian areas. Future actions that could contribute to cumulative effects to surface waters and groundwater resources within the surface water and groundwater CEAA include 46 solar RFFAs (estimated 268,053 acres) and another 180 RFFAs that consist of a variety of transportation (an estimated 456 miles), mining (estimated 8,343 acres), geothermal energy (estimated 103 acres), and other miscellaneous projects. Future actions that could contribute to cumulative effects to wetlands and riparian resources within the wetlands and riparian area CEAA include 40 solar RFFAs (estimated 232,726 acres) and another 113 RFFAs that consist of a variety of transportation (estimated 401 miles), mining (estimated 5,939 acres), geothermal energy (estimated 103 acres), and other miscellaneous projects.

Two of the RFFAs within the water resources CEAs are nominations proposing to designate an estimated 58,000-acre Cactus Springs ACEC near Indian Springs and an estimated 849,170-acre Esmeralda/Fish Lake ACEC in the vicinity of Silver Peak/Montezuma Range. Depending on management decisions, if these ACECs are designated, water resources may receive additional protections, if necessary to protect the areas relevance and importance values. Most of the RFFAs would not have impacts within the same watersheds as project-related impacts. Cumulative impacts to runoff quantity and quality would be limited because the potential surface water quality impacts would be controlled by implementation of local, state, and federal regulations or are in areas where surface water runoff would likely be handled by a municipal stormwater system. The RFFAs represent less than two percent of the surface and ground water CEAA and four percent of the wetland and riparian area CEAA.

#### **All Action Alternatives Contribution to Cumulative Impacts**

Impacts to surface water resources, wetlands, and riparian areas from the Action Alternatives would be associated with ground-disturbing activities such as clearing, grubbing, and blading to remove vegetation for GLWP construction. The Proponent has committed to measures for temporary and permanent erosion and sediment controls, spill-prevention practices, requirements for refueling and equipment operation near waterbodies, procedures for emergency response and incident reporting, and training requirements (Appendix C. EMMs BIO-18, BIO-43, BIO-45, CON-6, CON-9, DECOM-6, GEO\_SOIL-8, HAZMAT\_WASTE-1 through HAZMAT\_WASTE-24, and HYDRO\_WQ 1 through HYDRO\_WQ-22). Implementation of these EMMs would minimize impacts to surface water, wetlands, and riparian areas. Any work performed in WUS or wetlands determined to be WUS may require a Section 404 CWA permit issued by the USACE prior to any ground disturbance, which applies to public and private lands.

No new water rights or water wells would be required and no measurable changes to water levels of downstream hydrological systems are expected. Any herbicides used within the permanent ROW area for the Action Alternatives to manage incompatible vegetation would be approved by the appropriate land

management agency and impacts to groundwater quality from use of selected herbicides would not be detectable. The Proponent would place new structures outside of floodplains where possible and designed so as to not impede flood flows. Micro-siting during the final design of GLWP components would take flood hazards into account to minimize flood damage risk to structures.

The effects of the GLWP, when combined with past, present, and RFFAs, would result in cumulative effects on water resources. The Action Alternatives would impact less than one percent of the surface water and groundwater resources CEAA and the wetland and riparian resources CEAA. The Action Alternatives would result in a negligible contribution to cumulative effects on the water resources CEAs.

### **No Action Alternative Contribution to Cumulative Impacts**

The RFFAs would be implemented and other development and management trends and patterns would continue under the No Action Alternative. As previously described, these actions along with past and present projects would result in cumulative impacts to surface water, groundwater, wetland, and riparian resources. However, the GLWP would not be constructed and would not contribute to cumulative impacts to surface water, groundwater, wetland, and riparian resources within the associated CEAA.

#### **3.18.6.15 Visual Resources**

The major types of past, present, and RFFAs that could contribute to impacts to visual resources include transmission lines, renewable energy development, and mining and mineral exploration operations. These actions generally result in a change in the characteristic landscape from a natural setting to a more developed setting. There are an estimated 86 RFFAs within the visual resources CEAA that would occur primarily in Clark, Nye, Esmeralda, Storey, and Washoe counties. Of the 86 RFFAs, 33 would occur within lands under county or municipal jurisdiction or as part of the NDOT highway system.

There would be 52 RFFAs that would be located on BLM-administered lands, including solar (35 RFFAs), mining (3 RFFAs), and geothermal (1 RFFA) projects. The solar RFFAs would be located predominantly in undeveloped areas and would be grouped in two general areas: the Amargosa and Big Smoky valleys. In total, these solar RFFAs would encompass an estimated seven percent of the visual resources CEAA. Future BLM efforts, such as the Cherrywood Emergency Stabilization and Rehabilitation, would implement measures to reduce impacts to visual resources from prior disturbances. The nomination of the Cactus Springs and Esmeralda/Fish Lake ACECs could conserve landscapes, which would protect important visual resources in these areas.

Of the 86 RFFAs identified in the visual resource CEAA, the solar and mining RFFAs would collectively result in the greatest noticeable change to the characteristic landscape, scenic quality, and/or views from SVPs. In addition, solar and mining RFFAs built on BLM-administered lands designated as VRM Class II or Class III may not be in conformance with the management classification and, if so, would require RMP amendments. These future projects represent seven percent of the CEAA and less than one percent of all lands within the BMDO, CCDO, and SNDO, collectively. In combination, past, present, and RFFAs would result in cumulative impacts within the visual resource CEAA.

### **All Action Alternatives Contribution to Cumulative Impacts**

Impacts on the existing landscape character, scenic quality, and views from SVPs would vary depending on the setting, presence of existing built features, visibility conditions, distance from, and contrast created by the Action Alternatives. At specific locations, the Action Alternatives would result in changes in the visual resources where the GLWP components would create strong contrast and dominate the landscape. Visual

impacts of this magnitude would not be common and would only occur in Class B landscapes or when the viewer would be within the immediate FG of the Action Alternatives. Other locations where the GLWP would create strong contrast and dominate the landscape would be where it would cross linear SVPs multiple times, such as US 95 and the NHTs. The Action Alternatives would have impacts to visual resources that would vary from appearing unchanged to landscapes that would appear altered and views that would demand attention and dominate the visual setting.

The effects of the Action Alternatives, when combined with past, present, and RFFAs, would result in cumulative impacts on visual resources within the visual resources CEAA. Across the majority of the visual resources CEAA, visual resources impacts from the Action Alternatives would range from not being visually discernible to attracting attention in the setting. Therefore, the Action Alternatives would contribute to cumulative effects on visual resources within the visual resources CEAA.

#### **No Action Alternative Contribution to Cumulative Impacts**

The RFFAs would be implemented, and other development and management trends and patterns would continue under the No Action Alternative. As previously described, these actions along with past and present projects would result in cumulative impacts to visual resources. However, the GLWP would not be constructed and would not contribute to cumulative impacts to visual resources within the visual resources CEAA.

#### **3.18.6.16 Socioeconomic Resources and Environmental Justice**

The types of RFFAs that could contribute to cumulative impacts on socioeconomic resources and EJ populations include, for example, renewable energy projects, transportation, and commercial and residential development. The past and present actions have introduced livestock grazing, renewable energy, electrical transmission, mining operations, and transportation system improvement uses throughout the socioeconomic resources and EJ populations CEAA (or socioeconomic/EJ CEAA) with commercial and residential uses near the Las Vegas, North Las Vegas, Reno, and Sparks metropolitan areas.

There would be an estimated 262 RFFAs within the socioeconomic/EJ CEAA. The BLM has received ROW applications for 55 solar projects on approximately 313,710 acres of BLM-administered lands. Sixty-seven percent (214,326 acres) of the pending solar facilities would be located in the SNDO around Amargosa Valley, Indian Springs, and the Moapa River Indian Reservation. Twenty-nine percent (an estimated 93,033 acres) for the pending solar projects would be in BMDO, approximately 20 miles west of Tonopah and the remaining four percent (an estimated 12,786 acres) would be in CCDO approximately 10 miles to the north and southeast of Yerington. These solar RFFAs would represent approximately two percent of the BLM-administered lands in SNDO, and less than one percent of the BLM-administered lands in each of the BMDO and CCDO. If the construction of the average renewable energy project employs approximately 250 temporary employees over a two- to three-year period and approximately 5 permanent employees, the 55 pending solar projects would employ approximately 13,750 temporary and 275 permanent employees. The renewable energy RFFAs in the socioeconomic/EJ CEAA are assumed to be constructed sequentially rather than concurrently, therefore the number of temporary employees at one time would be reduced but the employment opportunity duration would be extended. Additionally, the 64 commercial and residential development RFFAs would generally be clustered in the Las Vegas, North Las Vegas, Reno, and Sparks metropolitan areas. As such, these local communities would have the greatest impacts.

Of the remaining 143 RFFAs in the socioeconomic/EJ CEAA, RFFAs that would contribute to the cumulative impacts on the socioeconomic resources include the development of mining and energy-related projects and the associated transportation and utility infrastructure. Continued renewable energy development would result in the permanent conversion of undeveloped land to energy production use. Construction of several major future road improvements in the socioeconomic/EJ CEAA would have a similar contribution to the regional economy.

The past, present, and RFFAs in the socioeconomic/EJ CEAA have, and would have, the potential to employ local workers, which reduces unemployment and increases earnings. Payroll and sales taxes and purchase of materials generated from this local employment base produce additional revenue for the municipalities, counties, and Nevada. Additionally, revenue is generated by construction crews staying in local accommodations and buying meals, gas, supplies in the rural and urban communities. County-wide socioeconomic short-term cumulative impacts are included in this analysis of cumulative impacts because there could be measurable short-term cumulative impacts to this resource. The RFFAs, depending on the construction timeframes and durations, may strain community services such as fire, police, and emergency response services.

Some of the RFFAs may overlap in time such that the cumulative projects would affect demands on temporary housing. Projects include concurrent construction of solar or other renewable energy, transmission lines and pipelines, and mining RFFAs that would require temporary housing and services for many non-local workers. The existing infrastructure within the local communities and counties may be limited and unable to accommodate the influx of workers from concurrent RFFA development. The short-term lodging capacity that has developed over time now supports seasonal tourism and outdoor recreation markets and temporary needs associated with energy exploration, development, and occasional industrial and infrastructure construction projects. Concurrent demands from different markets can result in full occupancy of available capacity, particularly in smaller communities along interstate and other major highway corridors and near popular outdoor recreation destinations. Given the large number of RFFAs within the socioeconomic/EJ CEAA and the likelihood that additional projects would be planned and constructed over the 35-year timeframe of the analysis, there would be an increased demand for construction workers and other skilled jobs in the renewable energy sector. These additional employment opportunities are important factors driving population growth. Considering all the RFFAs, there could be noticeable shifts in population, demographics, and housing characteristics.

The development of these solar and other renewable energy and mining operation projects would remove areas from recreation opportunities. The proposed Orken Solar facility would overlap with Big Dune SRMA. In addition, dispersed recreation including hunting, OHV use, and hiking would be eliminated within the fenced area of each renewable energy facility. The cumulative impact on recreation and tourism would be negligible because of the vast amount of land currently available for recreational opportunities. The RFFAs would represent approximately two percent of the SNDO and less than one percent of the entire socioeconomic/EJ CEAA.

The number and approximate distribution of RFFAs in the socioeconomic/EJ CEAA is substantial compared to the number and scale of past and present renewable energy facilities. Cumulative effects that could be expected to impact socioeconomic resources and EJ populations include job creation; tax revenue generation; and increases in the demand for local housing, transportation systems, businesses, recreation opportunities, and public services. Because the construction of many of the RFFAs would require a large number of workers compared to the operations phases, cumulative impacts are expected to be highest during construction. The timing of these effects is largely dependent on the construction of individual

RFFAs, which is uncertain. As such, impacts could vary greatly, especially if RFFAs are developed simultaneously. In combination, past, present, and RFFAs would result in cumulative impacts on socioeconomic resources and EJ population within the socioeconomic/EJ CEAA.

#### **All Action Alternatives Contribution to Cumulative Impacts**

The impacts from the Action Alternatives on the socioeconomic resources and EJ populations would vary depending on many factors, including which GLWP components would be located in a certain area/region related to the number of construction workers and the length of time construction workers spend in an area. The magnitude of socioeconomic/EJ impacts would be similar with each of the Action Alternatives, although alternatives may vary slightly in alignment or placement, they are not different regional alternatives. Some Action Alternatives would cross Tribal lands where a lease agreement would be necessary and lease income would be provided to the Tribe for the land, creating socioeconomic revenue for the Tribes. The Action Alternatives would have impacts on socioeconomic from the increases in employment, income, expenditures, and Tribal and public revenues. Effects would be greatest during the construction and decommissioning phases due to the size of the workforce required. Although impacts to employment and income would be less during O&M, the ROW/lease revenue generated by the GLWP would be consistent throughout construction, O&M, and decommissioning. The effects of the Action Alternatives, when combined with past, present, and RFFAs, would result in cumulative impacts on socioeconomic and EJ populations within this CEAA. The Action Alternatives would contribute to cumulative effects on the socioeconomic resources and EJ populations in the socioeconomic/EJ CEAA.

#### **No Action Alternative Contribution to Cumulative Impacts**

The RFFAs would be implemented and other development and management trends and patterns would continue under the No Action Alternative. As previously described, these actions along with past and present projects would result in cumulative impacts to socioeconomic resources and EJ populations. However, the GLWP would not be constructed and would not contribute to cumulative impacts to socioeconomic resources and EJ populations within the socioeconomic/EJ CEAA.

#### **3.18.6.17 Public Health and Safety**

Past, present, and RFFAs that could contribute to cumulative impacts to public health and safety, which also includes noise, fire management, and hazardous waste concerns include, for example, transmission lines, mining operations, and commercial development. There would be an estimated 115 RFFAs within the approximately 939,685-acre public health and safety CEAA. Of the 115 RFFAs, 69 would occur within urban areas, 39 would occur within rural areas, and 8 would occur within semi-rural areas. The RFFAs within more urban and developed areas would be expected to result in a greater potential for public health and safety impacts due to nearby populations. Forty are transportation RFFAs that would occur along existing routes and involve roadway improvements. Twenty-nine are solar RFFAs that would occur on BLM-administered lands, which would cover approximately 4 percent of the public health and safety CEAA. The majority of the solar RFFAs would occur within rural areas near the Amargosa and Big Smoky valleys.

The RFFAs would result in impacts to public health and safety primarily associated with workers during construction, O&M, and decommissioning. These include physical hazards such as risk of injury from equipment, weather exposure, and fire- and electrical-related risks. Risks to public health and safety would be greatest during construction and would generally decrease once construction is completed. Roadway improvements promote connectivity and could improve public health and safety by providing alternative

transportation routes where none existed previously, or where existing routes previously did not provide acceptable levels of service for the public. Transportation-related impacts from RFFAs, such as travel delays, would be greatest where widening and other major roadway actions occur in developed areas such as near the cities of Las Vegas, North Las Vegas, Sparks, and Reno.

Electric and magnetic fields occur both naturally and as a result of human activity from household appliances, cell phones, and computers as well as transmission lines. The public health and safety CEAA includes numerous high-voltage transmission lines in established energy corridors, in addition to microwave and radio communication towers. The majority of the RFFAs that would generate EMFs would be located away from residential areas where EMF impacts could occur. These EMF impacts diminish over distance and would only be measurable within and directly adjacent to the RFFAs.

Because nearly all of the RFFAs within the public health and safety CEAA would involve construction actions, there would be noise impacts. Noise impacts associated with roadway projects are expected to increase over ambient noise from traffic and construction. Noise associated with mining activities would continue for the life of the mining operations.

Fire can result from nearly all construction activities due to blasting activities, operation of combustion engines, and other practices that could inadvertently ignite vegetation. There would be a risk of fire associated with solar facility battery storage from equipment failure. As part of typical solar development, it is expected that the solar RFFAs would all result in incompatible vegetation crushing or removal to accommodate the solar arrays and access routes, which would reduce fire risk.

The RFFAs have the potential to result in hazardous waste as a result of construction activities and routine O&M. Many of the RFFAs are anticipated to involve the use, storage, and disposal of hazardous waste. Mining projects are expected to result in the greatest amount of waste from routine mining operations. Improper disposal and handling of hazardous materials has the potential to result in accidental releases.

Many RFFAs would be located on federal or state lands. These projects would be subject to environmental review and required to incorporate measures to minimize public health and safety, noise, fire management, and hazardous waste impacts. In combination, past, present, and RFFAs would result in cumulative impacts on public health and safety within the associated CEAA.

#### **All Action Alternatives Contribution to Cumulative Impacts**

The Action Alternatives would result in negligible impacts to public health and safety, noise, hazardous waste, and fire management with the implementation of the EMMs (Appendix C. EMMs CON-1 through CON-22, DECOM-10, DECOM-13, FIRE-1 through FIRE-16, HEALTH\_SAFE-1 through HEALTH\_SAFE-4, HAZMAT\_WASTE-1 through HAZMAT\_WASTE-24, and PHS-1 through PHS-8). The effects of the Action Alternatives, when combined with past, present, and RFFAs, would result in cumulative impacts to public health and safety, noise, hazardous waste, and fire management within the public health and safety CEAA. Due to the size and location of the permanent ROW areas of the Action Alternatives compared to the public health and safety CEAA and implementation of EMMs, the Action Alternatives would result in a negligible contribution to cumulative effects within the associated CEAA.

#### **No Action Alternative Contribution to Cumulative Impacts**

The RFFAs would be implemented and other development and management trends and patterns would continue under the No Action Alternative. As previously described, these actions along with past and present projects would result in cumulative impacts to public health and safety. However, the GLWP would

not be constructed and would not contribute to cumulative impacts to public health and safety within the associated CEAA.

### 3.19 BLM Preferred Alternative

Under NEPA, the “preferred alternative” is a preliminary indication of the lead agency’s preference of action among the No Action and Action Alternatives. The lead agency selects a preferred alternative for a variety of reasons including its priorities and environmental considerations discussed in an EIS. In accordance with NEPA (40 CFR 1502.14[d] and 43 CFR 1610.4-7), the BLM has identified its Preferred Alternative to be the Proposed Action as modified with the inclusion of specific transmission line and substation alternatives (Table 3-93). The BLM Preferred Alternative is illustrated in Figure 3-40 and the rationale for the inclusion of the modified transmission line and substation alternatives is described in more detail below.

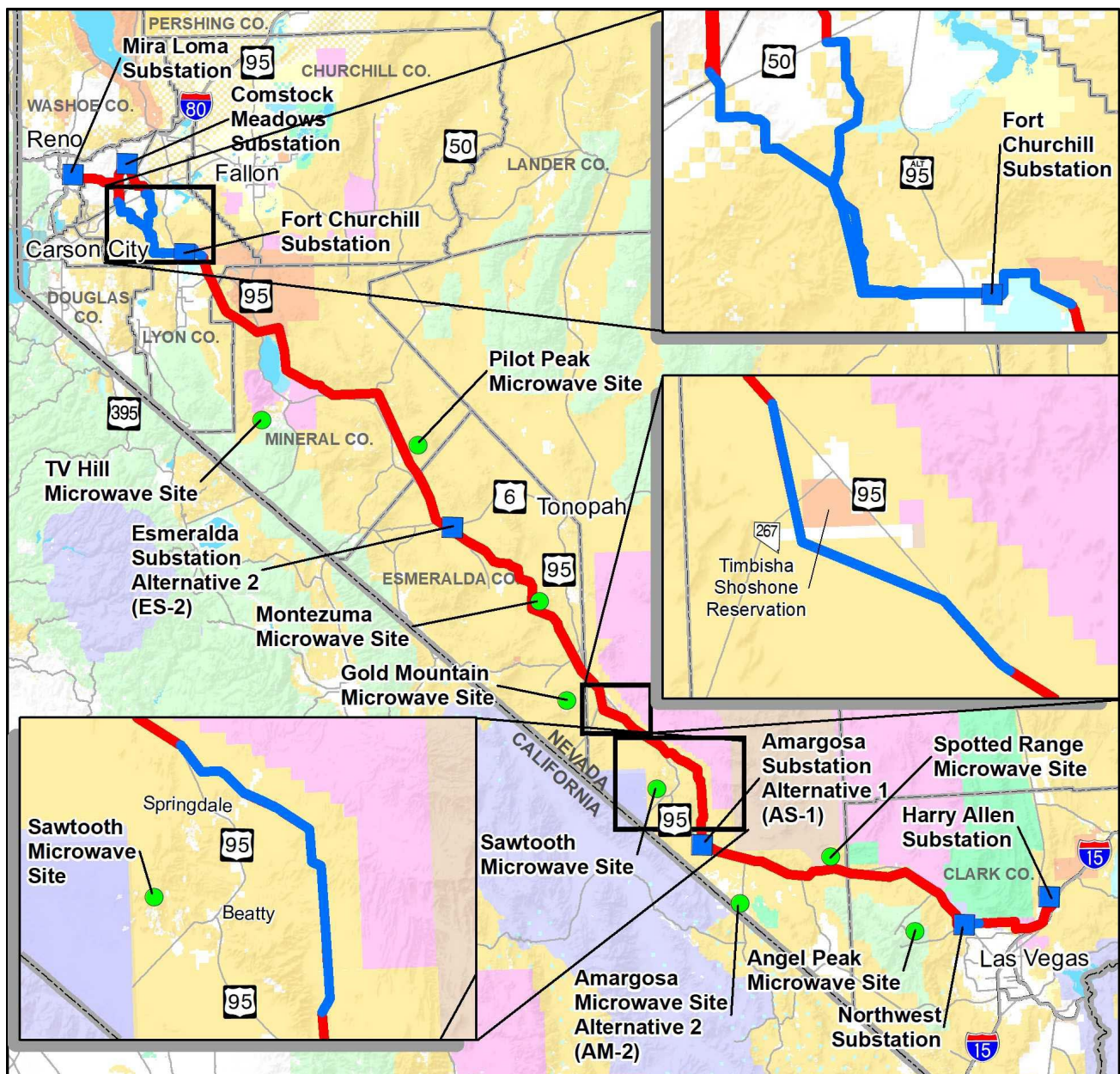
**Table 3-94. BLM Preferred Alternative**

Action Alternative
Beatty Transmission Alternative L
Scotty’s Junction Transmission Alternative A
Mason Valley WMA Transmission Alternative A
Carson River Transmission Alternative C
Amargosa Substation Alternative 1

*Table Acronym(s):* BLM – Bureau of Land Management; WMA – Wildlife Management Area

#### 3.19.1 Beatty Transmission Alternative L

During the public comment period on the Draft EIS/RMPA, mining and exploration claimants asserted they have certain rights under the General Mining Act of 1872 to develop discovered, valuable, mineral deposits in the Beatty area that would be impacted by the GLWP. The comments further asserted that the Draft EIS/RMPA BLM Preferred Alternative (specifically the Beatty Transmission Alternative K) would impact mining claimant plans to develop these resources underlying mining claims in the future. The Beatty Transmission Alternative K would overlap mining claims and an authorized exploration MPO. The Multiple Use Act of 1955 does not convey exclusive use for mining claims and exploration activities after 1955. While the Proponent sited the Proposed Action in WWEC 18-224 to allow for potential collocation, however when this WWEC was established the corridor was not withdrawn from mineral entry. As a result of the consideration of these factors, the BLM analyzed the Beatty Transmission Alternative L in detail in the Final EIS/Proposed RMPA, which included the completion of all baseline resource studies consistent with the other Action Alternatives. The BLM also included Beatty Transmission Alternative L in the ESA Section 7 consultation for the GLWP. The Beatty Transmission Alternative L was incorporated as part of the BLM Preferred Alternative in this Final EIS/Proposed RMPA because it would not impact mining claimants planning for future MPOs. Although the Beatty Transmission Alternative L was not analyzed in the Draft EIS/RMPA, a supplemental EIS, which would require re-circulation of the Draft EIS/RMPA, was not required because the impacts from this alternative would not result in effects outside of the spectrum of effects analyzed in the Draft EIS/RMPA (see Section 5.3.2 of the BLM’s NEPA handbook (BLM 2008b)). The consideration of a reasonable alternative presented during the public comment period for the Draft EIS/RMPA is consistent with Section 6.9.2 of the BLM’s NEPA Handbook (BLM 2008b).

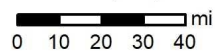


**Legend**

- Microwave Site
- Substation
- Proposed Action Incorporated as Part of the BLM Preferred Alternative
- Specific Transmission Line Alternative Incorporated as Part of the BLM Preferred Alternative
- Bureau of Land Management
- Department of Energy
- Bureau of Reclamation
- Department of Defense
- US Fish and Wildlife Service
- US Forest Service
- Indian Reservation
- National Park Service
- State
- Private
- Water



Scale: 1:3,000,000



No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure 3-40. BLM Preferred Alternative**



### **3.19.2 Scotty's Junction Transmission Alternative A**

After the publishing of the Draft EIS/RMPA, through consultation and coordination with the Native American Tribes, the Timbisha Shoshone Tribe expressed a preference for the GLWP to be located off of the Timbisha Shoshone Reservation. Additionally, Scotty's Junction Transmission Alternative A would have less impact on private lands and cultural resources as compared to the Proposed Action. As a result, the BLM incorporated Scotty's Junction Transmission Alternative A as part of the BLM Preferred Alternative in this Final EIS/Proposed RMPA rather than Scotty's Junction Transmission Alternative B and the Proposed Action due to the concerns expressed by the Tribe and the reduced impacts to cultural resources and private lands under Scotty's Junction Transmission Alternative A.

### **3.19.3 Mason Valley WMA Transmission Alternative A**

The Mason Valley WMA Transmission Alternative A would include substantially less temporary and permanent ROW areas within the Mason Valley WMA than the Proposed Action. This reduction in ROW areas would result in less impacts to riparian habitats and fewer structures located within the Mason Valley WMA. The BLM incorporated the Mason Valley WMA Transmission Alternative A as part of the BLM Preferred Alternative rather than the Proposed Action because of the reduced impacts associated with this alternative on the Mason Valley WMA and its associated habitats.

### **3.19.4 Carson River Transmission Alternative C**

During the public scoping period, local private landowners raised concerns about the Proposed Action and Carson River Transmission Alternative A impacting the use of their existing authorized ROW areas on BLM-administered land as well as to their privately owned land. Through additional coordination, the BLM, the Proponent, and the private landowners developed the Carson River Transmission Alternative C, which resolved the land use/ROW conflicts. Additionally, the Carson River Transmission Alternative C would have less impacts to suitable habitat for Churchill Narrows buckwheat and riparian habitats compared to the Proposed Action. The Carson River Transmission Alternative A would have less impact to Churchill Narrows buckwheat and riparian habitats than Carson River Transmission Alternative C, however, the land use/ROW conflicts would not be completely resolved by this alternative. The BLM incorporated the Carson River Transmission Alternative C as part of the BLM Preferred Alternative in this Final EIS/Proposed RMPA rather than the Proposed Action and the Carson River Transmission Alternative A because of the total combined reduction in impacts to resources, including land use and existing authorized ROW areas, as well as special status species and wildlife habitat.

### **3.19.5 Amargosa Substation Alternative 1**

There are five sensitive species (Amargosa miloderes weevil, Amargosa Valley darkling beetle, Ash Meadows dune scorpion, Giuliani's dune scarab, and large aegialian scarab) that are only known to occur at two locations, Big Dune and Lava Dune, within the vicinity of AS-1 and AS-2 (Proposed Action). The strong winds associated with sand deposition for Lava and Big dunes generally come from the south-southeast direction. The AS-1 would be located approximately 5.2 miles west of the Lava Dune and approximately 2.7 miles northwest of Big Dune. The AS-2 (Proposed Action) would be located approximately 3.1 miles east of Big Dune and would not interfere with sand deposition rates or patterns to this dune. Construction of the AS-2 (Proposed Action) would be located along the south side of US 95 approximately 1.2 miles south of Lava Dune and may impact sand transport and deposition pattern and rate to the dune. By eliminating any modification of sand transport and deposition with the

implementation of AS-1, impacts to the five special status species that rely on these dunes would be avoided. In their comments on the Draft EIS/RMPA, the USFWS recommended that the BLM incorporate the AS-1 location as part of the BLM Preferred Alternative in this Final EIS/Proposed RMPA rather than the AS-2 (Proposed Action) due to the reduced impacts on sensitive species.

The AS-1 would also be located less than approximately one mile from the Amargosa Valley SEZ; approximately 6.4 miles closer than AS-2 (Proposed Action). If the Amargosa Valley SEZ were to be developed, any solar development there would require a shorter connection to the substation. During the public comment period on the Draft EIS/RMPA, the Beatty Town Advisory Board indicated their preference for AS-1 over AS-2 (Proposed Action) because of the closer proximity to the Amargosa Valley SEZ and that it would have less impact on sensitive species. The BLM incorporated the AS-1 as part of the BLM Preferred Alternative in this Final EIS/Proposed RMPA rather than the AS-2 (Proposed Action) because of the reduction in impacts to sensitive species and the closer proximity to the Amargosa Valley SEZ.

### **3.20 Comparison of Impacts by Alternative**

Table 3-94 through Table 3-98 provide a summarized comparison of land ownership and key resource impacts (presented in detail in Chapter 3) associated with each of the transmission route, substation, and microwave group alternatives.

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**Table 3-95. Comparison of Alternatives for the Losee and TUSK Transmission Line Route Groups**

Resource/Use Impact	Proposed Action	Losee Transmission Alternative A	Proposed Action	TUSK Transmission Alternative B
<b>Land Ownership</b> (approximate centerline miles)	<ul style="list-style-type: none"> <li>Total: 4.0                             <ul style="list-style-type: none"> <li>BLM: 4.0</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Total: 4.1                             <ul style="list-style-type: none"> <li>BLM: 4.1</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Total: 1.5                             <ul style="list-style-type: none"> <li>NPS: 1.5</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Total: 1.5                             <ul style="list-style-type: none"> <li>NPS: 1.5</li> <li>BLM: &lt;0.1</li> </ul> </li> </ul>
<b>Land Ownership</b> (approximate temporary ROW area acres)	<ul style="list-style-type: none"> <li>Total: 252.1                             <ul style="list-style-type: none"> <li>BLM: 209.9</li> <li>DOD: 42.2</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Total: 295.6                             <ul style="list-style-type: none"> <li>BLM: 295.4</li> <li>DOD: &lt;0.1</li> <li>Private: 0.2</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Total: 62.9                             <ul style="list-style-type: none"> <li>BLM: 22.0</li> <li>County: 2.0</li> <li>NPS: 3.5<sup>a</sup></li> <li>Private: 35.4</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Total: 115.6                             <ul style="list-style-type: none"> <li>BLM: 14.6</li> <li>County: 2.5</li> <li>NPS: 77.0</li> <li>Private: 21.4</li> </ul> </li> </ul>
<b>Land Ownership</b> (approximate permanent ROW area acres)	<ul style="list-style-type: none"> <li>Total: 97.9                             <ul style="list-style-type: none"> <li>BLM: 94.7</li> <li>DOD: 3.3</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Total: 97.8                             <ul style="list-style-type: none"> <li>BLM: 97.8</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Total: 36.4                             <ul style="list-style-type: none"> <li>BLM: 5.9</li> <li>County: 0.3</li> <li>NPS: 19.8</li> <li>Private: 11.2</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Total: 36.4                             <ul style="list-style-type: none"> <li>NPS: 36.4</li> </ul> </li> </ul>
<b>Federally Listed Species:</b> How would construction, O&M, and decommissioning of the GLWP affect federally listed species and their habitats?	<ul style="list-style-type: none"> <li>No impact to Bi-State Sage-grouse, Lahontan cutthroat trout, Mount Charleston blue butterfly, northwestern pond turtle, Amargosa niterwort, Ash Meadows gumplant. Ash Meadows blazingstar, Ash Meadows ivesia, Ash Meadows sunray, Ash Meadows milkvetch, or spring-loving centaury.</li> <li>The Proposed Action would cross through Mojave desert tortoise suitable and occupied habitat. Based on the GLWP 2021-2023 surveys, the Proposed Action would include four Mojave desert tortoise burrows in the temporary ROW area and no burrows in the permanent ROW area. The Proposed Action would be located within 136.9 acres of Priority I connectivity habitat in the temporary ROW area and 47.2 acres in the permanent ROW area.</li> <li>The Proposed Action would not occur within suitable breeding habitat for the southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail. These species could migrate or disperse over the Proposed Action, but impacts would be negligible.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action except based on the GLWP 2021-2023 surveys, the Losee Transmission Alternative A would include eight Mojave desert tortoise burrows within the temporary ROW area and no burrows in the permanent ROW area. The Losee Transmission Alternative A would include 286.3 acres of Priority I connectivity habitat in the temporary ROW area and 94.8 acres in the permanent ROW area.</li> </ul>	<ul style="list-style-type: none"> <li>No impact to Bi-State sage-grouse, Lahontan cutthroat trout, Mount Charleston blue butterfly, northwestern pond turtle, Amargosa niterwort, Ash Meadows gumplant. Ash Meadows blazingstar, Ash Meadows ivesia, Ash Meadows sunray, Ash Meadows milkvetch or spring-loving centaury.</li> <li>The Proposed Action would cross through Mojave desert tortoise suitable habitat. The Proposed Action would include approximately 12.6 acres of Priority I and II connectivity habitat in the temporary ROW area and approximately 2.1 acres in the permanent ROW area.</li> <li>The Proposed Action would not occur within suitable breeding habitat for the southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail. These species could migrate or disperse over the Proposed Action, but impacts would be negligible.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action, with the following exceptions:                             <ul style="list-style-type: none"> <li>The TUSK Transmission Alternative B would include approximately 22.1 acres of Mojave desert tortoise Priority I and II connectivity habitat in the temporary ROW area and approximately 5.9 acres in the permanent ROW area.</li> <li>The lattice structures of TUSK Transmission Alternative B would increase the potential for raven predation on Mojave desert tortoise in and around TUSK, resulting in long-term impacts on Mojave desert tortoise populations.</li> </ul> </li> </ul>
<b>General Vegetation:</b> How would construction, O&M, and decommissioning of the GLWP affect native vegetation, invasive plant species and noxious weeds, and forest resources?	<ul style="list-style-type: none"> <li>The amount of potential temporary and permanent disturbance to native vegetation communities from the Proposed Action would be minimal compared to amount of these populations in the vegetation analysis area.</li> <li>The Proposed Action would have a negligible impact on the spread and/or introduction of invasive plant species and noxious weeds because of the implementation of measures to minimize potential effects.</li> <li>The Proposed Action would have no impacts to forest resources and would not result in impacts or modifications to the existing management of forest resources by the federal ROW agencies.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>The amount of potential temporary and permanent disturbance to native vegetation communities from the Proposed Action would be minimal compared to amount of these populations in the vegetation analysis area. The Proposed Action would have a negligible impact on the spread and/or introduction of invasive plant species and noxious weeds because of the implementation of measures to minimize potential effects.</li> <li>The Proposed Action would have no impacts to forest resources and would not result in impacts or modifications to the existing management of forest resources by the federal ROW agencies.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>

**Table 3-94. Comparison of Alternatives for the Losee and TUSK Transmission Line Route Groups  
(continued)**

Resource/Use Impact	Proposed Action	Losee Transmission Alternative A	Proposed Action	TUSK Transmission Alternative B
<b>Special Status Species:</b> How would construction, O&M, and decommissioning of the GLWP affect habitat, movement, and behavior of special status species and migratory birds?	<ul style="list-style-type: none"> <li>The Proposed Action could potentially affect special status plants, terrestrial wildlife, and bird and bat species individuals, communities, and/or suitable or occupied habitat. No special status aquatic species suitable or occupied habitat would occur.</li> <li>Three special status plants—Las Vegas bearpoppy, Las Vegas buckwheat, and rosy twotone beardtongue—have been recorded in the vicinity of the Proposed Action. No records occur within the temporary or permanent ROW for the Proposed Action, though suitable habitat is present.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action</li> </ul>	<ul style="list-style-type: none"> <li>Special status plants, terrestrial wildlife, and bird and bat species could occur within the Proposed Action temporary and permanent ROW areas. No special status aquatic species suitable or occupied habitat would occur. The Proposed Action would include approximately 62.9 acres of temporary ROW area (3.5 acres within the TUSK) and approximately 36.4 acres of permanent ROW area (19.8 acres within the TUSK) that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat.</li> <li>Two special status plants, Las Vegas bearpoppy and Las Vegas buckwheat, have been recorded in the vicinity of the Proposed Action. Survey results for the Las Vegas bearpoppy and records for the Las Vegas buckwheat identified no individuals within the temporary or permanent ROW areas for the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action, except TUSK Transmission Alternative B would include approximately 115.6 acres of temporary ROW area and approximately 36.4 acres of permanent ROW area that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat.</li> </ul>
<b>Bald and Golden Eagles:</b> How would construction, O&M, and decommissioning of the GLWP affect bald and golden eagles?	<ul style="list-style-type: none"> <li>No impact.</li> </ul>	<ul style="list-style-type: none"> <li>No impact.</li> </ul>	<ul style="list-style-type: none"> <li>No impact.</li> </ul>	<ul style="list-style-type: none"> <li>No impact.</li> </ul>
<b>General Wildlife:</b> How would construction, O&M, and decommissioning of the GLWP affect general wildlife?	<ul style="list-style-type: none"> <li>The Proposed Action would result in impacts on general wildlife including habitat loss and fragmentation; collisions with or crushing by vehicles and equipment; increased avian predation; and temporary disturbance from noise, vehicles, and human presence.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>The Proposed Action would result in impacts on general wildlife. These impacts would include habitat loss and fragmentation; collisions with or crushing by vehicles and equipment; increased avian predation; and temporary disturbance from noise, vehicles, and human presence.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>
<b>Cultural Resources:</b> Would historic properties be affected by the construction, O&M, and decommissioning of the GLWP?	<ul style="list-style-type: none"> <li>Within the Proposed Action Cultural Resources DAPE/VAPE, 0 cultural resource sites/historic properties would have adverse effects, 3 would have no adverse effects, and 4 would have no effects.</li> </ul>	<ul style="list-style-type: none"> <li>Within the Losee Transmission Alternative A cultural resources DAPE/VAPE, 0 cultural resource sites/historic properties would have adverse effects, 3 would have no adverse effects, and 5 would have no effects.</li> </ul>	<ul style="list-style-type: none"> <li>Within the Proposed Action Cultural Resources DAPE/VAPE, 0 cultural resource sites/historic properties would have adverse effects, 1 would have no adverse effects, and 1 would have no effects.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>
<b>Native American Religious Concerns:</b> How would sacred sites or TCPs be affected by construction, O&M, and decommissioning of the GLWP?	<ul style="list-style-type: none"> <li>The Proposed Action may directly and/or indirectly impact some areas of Native American religious concern. Direct impacts would come from ground disturbance during construction, restricting access to sacred sites, and visual changes due to new infrastructure. Ground-disturbing activities could have direct physical impacts on prayer sites such as displacement, damage, or destruction of features.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>The Moapa Band of Paiutes initially expressed concern about the GLWP impacting culturally sensitive areas in the TUSK. The BLM continued Tribal consultation under Section 106 and through government-to-government consultation. As the BLM shared more information about the project through consultation, no specific Native American concerns within the TUSK were identified. The GLWP is not anticipated to have impacts on culturally sensitive areas within TUSK.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>
<b>Paleontological Resources:</b> How would construction, O&M, and decommissioning of the GLWP affect paleontological resources?	<ul style="list-style-type: none"> <li>The Proposed Action would cross approximately 200.2 acres of low (PFYC 2) paleontological potential.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action, except the Losee Transmission Alternative A would cross approximately 196.8 acres of low (PFYC 2) paleontological potential</li> </ul>	<ul style="list-style-type: none"> <li>The Proposed Action would cross geologic units with very high (PFYC 5) and low (PFYC 2) paleontological potentials. The Proposed Action would cross approximately 25.6 acres of high (PFYC 5) paleontological potential and 50.1 acres of low (PFYC 2) paleontological potential.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action, except the TUSK Transmission Alternative B would cross approximately 23.2 acres of high (PFYC 5) paleontological potential and approximately 52.4 acres of low (PFYC 2) paleontological potential.</li> </ul>
<b>Earth Resources:</b> How would construction, O&M, and decommissioning of the GLWP affect the earth resources of geology, soils, and minerals?	<ul style="list-style-type: none"> <li>Wind and water erosion rates would be low for the Proposed Action.</li> <li>There is no prime farmland if irrigated, irrigated and drained, or irrigated and reclaimed of excess salts and sodium, or farmland of statewide importance associated with the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Wind and water erosion rates would be low for the Proposed Action.</li> <li>There is no prime farmland if irrigated, irrigated and drained, or irrigated and reclaimed of excess salts and sodium, or farmland of statewide importance soils associated with the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>
<b>Air Quality, Climate Change, and Greenhouse Gas Emissions:</b> How would construction, O&M, and decommissioning of the GLWP affect air quality?	<ul style="list-style-type: none"> <li>The Proposed Action would result in negligible impacts to air quality from low-level particulate matter emissions from construction, O&amp;M, and decommissioning activities that may generate fugitive dust (particulates).</li> <li>The construction of the Proposed Action would result in GHG emissions over the short-term. The majority of these emissions would occur during the construction and decommissioning phases. Minimal increases could potentially occur during O&amp;M.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>The Proposed Action would result in negligible impacts to air quality from low-level particulate matter emissions from construction, O&amp;M, and decommissioning activities that may generate fugitive dust (particulates).</li> <li>The construction of the Proposed Action would result in GHG emissions over the short-term. The majority of these emissions would occur during the construction and decommissioning phases. Minimal increases could potentially occur during O&amp;M.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>

**Table 3-94. Comparison of Alternatives for the Losee and TUSK Transmission Line Route Groups  
(continued)**

Resource/Use Impact	Proposed Action	Losee Transmission Alternative A	Proposed Action	TUSK Transmission Alternative B
<p><b>Special Designation Areas:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect special designation areas?</p>	<ul style="list-style-type: none"> <li>The Proposed Action would include a new access road that would run immediately adjacent along to the Desert NWR boundary. This would result in an increased opportunity for user-created route proliferation.</li> <li>The Proposed Action would cross approximately 1 mile of the Las Vegas Valley SRMA along the boundary of the Desert NWR but would not interfere with this SRMA’s management objective to facilitate the provision of open space areas, recreational trails, and parks.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action, except the Losee Transmission Alternative A would not run adjacent to the Desert NWR border, which would reduce the potential for unauthorized access to the SDA.</li> <li>The Losee Transmission Alternative A would cross approximately 3 miles of the Las Vegas Valley SRMA (1 mile along the extension Grand Teton Drive and 2 miles along the extension of Losee Road but would not interfere with this SRMA’s management objective to facilitate the provision of open space areas, recreational trails, and parks).</li> </ul>	<ul style="list-style-type: none"> <li>The Proposed Action would cross into and would be parallel to the TUSK boundary for approximately 1.5 miles. The permanent ROW area required for the Proposed Action within the TUSK boundary would equate to approximately 19.8 acres.</li> <li>The Ice Age Fossils State Park, Floyd Lamb Park at Tule Springs, Red Rock Canyon NCA, Desert NWR, Las Vegas Valley SRMA, and Southern Nevada ERMA are within 3 miles from the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action, except the TUSK Transmission Alternative B would consist of six guyed-V wire-frame structures instead of delta monopole structures. The permanent ROW area required for the TUSK Transmission Alternative B within the TUSK boundary would equate to approximately 36.4 acres.</li> </ul>
<p><b>National Historic Trails and Trails Under Study for Congressional Designation:</b> How would the construction, O&amp;M, and decommissioning of the GLWP affect NHTs (Old Spanish, California, and Pony Express) and feasible and suitable portions of the Central Overland Emigrant Route?</p>	<ul style="list-style-type: none"> <li>The Proposed Action would not be visible from the Old Spanish NHT.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>No impact.</li> </ul>	<ul style="list-style-type: none"> <li>No impact.</li> </ul>
<p><b>Land Use, Realty, and Indian Trust Assets:</b> What would the physical disturbance or other impacts to operations of existing ROWs or land uses be with the construction, O&amp;M, and decommissioning of the GLWP?</p>	<ul style="list-style-type: none"> <li>The Proposed Action’s tower structures and lines would create obstructions to low-flying military operations on the western edge of the Nellis AFB Small Arms Range.</li> <li>The Proposed Action would have a negligible impact on the planned UNLV campus because it would be constructed along the eastern and northern boundary edge of the campus property.</li> </ul>	<ul style="list-style-type: none"> <li>The Losee Transmission Alternative A would be further away from the Nellis AFB Small Arms Range and would not create obstructions to low-flying military operations.</li> <li>The Losee Transmission Alternative A would cross through the planned UNLV campus where the land is currently vacant. The Losee Transmission Alternative A would result in the loss of use of less than one percent of the UNLV campus. The UNLV campus and the GLWP would be planned concurrently.</li> </ul>	<ul style="list-style-type: none"> <li>The Proposed Action would cross into and would be parallel to the TUSK boundary for approximately 1.5 miles and would be immediately adjacent to two existing transmission lines and the residential development on the southern boundary of the TUSK along Moccasin Road.</li> <li>The Proposed Action would alter land uses within the TUSK. The Durango Loop Trail and a 62-space parking area and kiosk would be within the temporary ROW area (NPS SUP for construction) of the Proposed Action. Approximately 14 percent (0.3 mile) of the Durango Loop Trail, the existing kiosk, and three parking spaces would be temporarily closed during the estimated three-month construction period for the Proposed Action. The kiosk and the Durango Loop Trail would remain open and accessible to visitors during O&amp;M of the Proposed Action. The three parking spaces would be permanently eliminated.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action, except the centerline of the TUSK Transmission Alternative B would be 120 feet north of the boundary at Moccasin Road.</li> <li>Approximately 18 percent (0.4 mile) of the Durango Loop Trail would be temporarily closed during construction for the TUSK Transmission Alternative B. There would be no parking spaces permanently eliminated.</li> </ul>
<p><b>Water Resources:</b> How would the construction, O&amp;M, and decommissioning of the GLWP affect water resources?</p>	<ul style="list-style-type: none"> <li>The Proposed Action would include 69 surface water crossings in the temporary ROW area and 31 surface water crossings in the permanent ROW area. There would be no temporary or permanent ROW areas in high flood risk areas.</li> </ul>	<ul style="list-style-type: none"> <li>The Losee Transmission Alternative A would include approximately 128 surface water crossings in the temporary ROW area and approximately 55 surface water crossings in the permanent ROW area. There would be no temporary or permanent ROW areas in high flood risk areas.</li> </ul>	<ul style="list-style-type: none"> <li>The Proposed Action would include approximately 54 surface water crossings in the temporary ROW area and approximately 16 surface water crossings in the permanent ROW area. There would be approximately 9.1 acres of the temporary ROW area in high flood risk areas.</li> </ul>	<ul style="list-style-type: none"> <li>The TUSK Transmission Alternative B would include approximately 44 surface water crossings in the temporary ROW area and approximately 15 surface water crossings in the permanent ROW area. There would be approximately 0.3 acres of the temporary ROW area in high flood risk areas.</li> </ul>

**Table 3-94. Comparison of Alternatives for the Losee and TUSK Transmission Line Route Groups  
(continued)**

Resource/Use Impact	Proposed Action	Losee Transmission Alternative A	Proposed Action	TUSK Transmission Alternative B
<p><b>Visual Resources:</b> How would the construction, O&amp;M, and decommissioning of the GLWP affect visual resources?</p>	<ul style="list-style-type: none"> <li>• The Proposed Action permanent ROW area would cross approximately 99.4 acres of Scenic Quality Class C landscapes. There would be no apparent change in scenic quality.</li> <li>• Motorists traveling along the roadways would have views of the Proposed Action for a total of approximately seven minutes on I-15 and nine minutes on CC 215. Views of the Proposed Action would be intermittent and would not attract attention from motorists traveling along I-15 and CC 215. From I-15 traveling NB and SB, motorists would see approximately 3.1 miles and approximately 2.4 miles, respectively, of the Proposed Action. Traveling EB and WB on CC 215, motorists would have views for a total of approximately 4.1 miles for the Proposed Action.</li> <li>• The Proposed Action would be visible from approximately 48 percent of the Ice Age Fossils State Park in the MG. Approximately 0.9 miles of the Proposed Action would be seen by park visitors. The Proposed Action would be discernible but would not attract attention.</li> <li>• The Proposed Action would be visible from approximately five percent of the TUSK in the FG and nine percent in the MG. Approximately 4.1 miles of the Proposed Action would be seen by TUSK visitors. The Proposed Action would be recognizable but would not attract the attention of the casual observer.</li> <li>• The Proposed Action would be in conformance with the VRM Class III designated landscape.</li> </ul>	<ul style="list-style-type: none"> <li>• Similar to the Proposed Action with the following exceptions: <ul style="list-style-type: none"> <li>○ The Losee Transmission Alternative A permanent ROW area would include approximately 97.8 acres of Class C landscapes. There would be no apparent change in scenic quality.</li> <li>○ The duration of views of the Losee Transmission Alternative A from I-15 or CC 215 would be similar to the Proposed Action. From I-15 traveling NB and SB, motorists would see approximately 3.6 miles and approximately 3.3 miles, respectively, of the Losee Transmission Alternative A. More of the Losee Transmission Alternative A would be seen in the FG of the two highways than the Proposed Action.</li> <li>○ The Losee Transmission Alternative A would be visible from approximately 79 percent of the Ice Age Fossils State Park in the MG; none in the FG. Approximately 2.8 miles of the Losee Transmission Alternative A would be seen by park visitors. The Losee Transmission Alternative A would be discernible but would not attract attention.</li> <li>○ The Losee Transmission Alternative A would be visible from approximately six percent of the TUSK in the FG and eight percent in the MG. Approximately 4.1 miles of the Losee Transmission Alternative A would be seen by TUSK visitors and would be recognizable but would not attract the attention of the casual observer.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• The Proposed Action permanent ROW area would cross Scenic Quality Class C landscapes. There would be no apparent change in scenic quality.</li> <li>• Motorists traveling along roadways would have views of the Proposed Action for a total of approximately eight minutes on US 95, three minutes on SR 157, and four minutes on CC 215. Views of the Proposed Action would not attract attention from motorists traveling along US 95, SR 157, and CC 215.</li> <li>• Under the Proposed Action, SDA SVPs that would have views of the alternative include Floyd Lamb Park at Tule Springs, Ice Age Fossils State Park, Red Rock Canyon NCA, and TUSK. Views of the Proposed Action would not attract attention from these SVPs, with the exception of TUSK where the Proposed Action would attract attention and begin to dominate the visual setting in the FG.</li> <li>• The Proposed Action would be in conformance with the VRM Class III designated landscape.</li> <li>• A NPS Visual Impact Assessment was conducted for the Proposed Action that would occur on TUSK lands. The following viewpoints would have views of the Proposed Action and the Visual Impact Assessment is as follows: <ul style="list-style-type: none"> <li>○ Durango/Moccasin (TUSK Viewpoint #12): From the Durango/Moccasin Viewpoint, the Proposed Action would result in weak contrast with the existing features in the landscape.</li> <li>○ Durango Trail (East): From the Durango Trail (East) Viewpoint, the Proposed Action would not contrast with the existing features in the landscape.</li> <li>○ Durango Trail (North): From the Durango Trail (North) Viewpoint, the Proposed Action would result in weak contrast with the existing features in the landscape.</li> <li>○ Golden Triangle Trailhead (TUSK Viewpoints #22 and #23): From the Golden Triangle Trailhead Viewpoint, the Proposed Action would result in weak contrast with the existing features in the landscape and have an overall low visual change to the view as a whole.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Same as the Proposed Action, with the following exceptions: <ul style="list-style-type: none"> <li>○ The TUSK Transmission Alternative B would alter the FG views from TUSK with the introduction of the guyed lattice structures and would be visually prominent. There would be negligible changes in the views from Floyd Lamb Park at Tule Springs, Ice Age Fossils State Park, and Red Rock Canyon NCA resulting from the TUSK Transmission Alternative B in the MG because guyed lattice structures would not be visually discernible from this distance.</li> <li>○ There are no BLM-administered lands associated with the TUSK Transmission Alternative B and, as such, conformance determinations with VRM objectives are not applicable.</li> </ul> </li> <li>• The results of the NPS TUSK Visual Impact Assessment for TUSK Transmission Alternative B would be as follows: <ul style="list-style-type: none"> <li>○ Durango/Moccasin (TUSK Viewpoint #12): The TUSK Transmission Alternative B would change the view overall because it would differ from the existing landscape character and increase the spatial dominance of the built features in the landscape as seen from the viewpoint. The visual change would decrease with increasing distance from the Durango/Moccasin Viewpoint.</li> <li>○ Durango Trail (East): The TUSK Transmission Alternative B would change to the view as a whole because it would differ from the existing landscape character and increase the spatial dominance of the built features in the landscape as seen from the viewpoint. The lattice structures would, however, become less apparent at increased distances from the viewpoint due to the open lattice design of the form and the flat gray finish and the visual change would decrease with increasing distance from the Durango Trail (East) Viewpoint.</li> <li>○ Durango Trail (North): The TUSK Transmission Alternative B would not attract attention in the view and would be compatible with the landscape character because it would be nearly indistinguishable from the other built features in the viewshed due to the design and color of the transmission line structures. From the Durango Trail (North) Viewpoint, the TUSK Transmission Alternative B would have an overall low visual change to the view as a whole.</li> <li>○ Golden Triangle Trailhead (TUSK Viewpoints #22 and #23): While the TUSK Transmission Alternative B would mimic existing features found in the setting, the addition of a third set of transmission lines that would be noticeably different from the existing transmission lines would begin to attract attention away from the landscape within the TUSK.</li> </ul> </li> </ul>

**Table 3-94. Comparison of Alternatives for the Losee and TUSK Transmission Line Route Groups  
(continued)**

<b>Resource/Use Impact</b>	<b>Proposed Action</b>	<b>Losee Transmission Alternative A</b>	<b>Proposed Action</b>	<b>TUSK Transmission Alternative B</b>
<b>Socioeconomic Resources and Environmental Justice:</b> What impact would the construction, O&M, and decommissioning of the GLWP have on socioeconomic resources and EJ populations?	<ul style="list-style-type: none"> <li>The Proposed Action would include short-term economic impacts from the increased demand for public services associated with the construction workforce. Additionally, there would be long-term economic impacts associated with the generation of tax revenues. The Proposed Action would have no disproportionate impacts on EJ populations.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>The Proposed Action would include short-term economic impacts from the increased demand for public services associated with the construction workforce. Additionally, there would be long-term economic impacts associated with the generation of tax revenues. The Proposed Action would have no disproportionate impacts on EJ populations.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>
<b>Public Health and Safety, Noise, Fire Management, and Waste:</b> How would construction, O&M, and decommissioning of the GLWP affect public health and safety, noise, fire management, and waste?	<ul style="list-style-type: none"> <li>The Proposed Action would have negligible impacts on public health and safety, noise, and hazardous waste materials and no impact on fire management.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>The Proposed Action would have negligible impacts on public health and safety, noise, and hazardous waste materials and no impact on fire management.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>
<b>BLM RMP Conformance</b>	<ul style="list-style-type: none"> <li>VRM: Conforms</li> <li>WWEC: Conforms</li> </ul>	<ul style="list-style-type: none"> <li>VRM: Conforms</li> <li>WWEC: Conforms</li> </ul>	<ul style="list-style-type: none"> <li>VRM: Conforms</li> <li>WWEC: Conforms</li> </ul>	<ul style="list-style-type: none"> <li>VRM: Conforms</li> <li>WWEC: Conforms</li> </ul>

*Table Acronym(s):* AFB – Air Force Base; BLM – Bureau of Land Management; CR – County Route; DAPE – Direct Area of Potential Effects; DOD – Department of Defense; EJ – Environmental Justice; FG – Foreground; GHG – Greenhouse gas; GLWP – Greenlink West Transmission Project; I – Interstate; MG – Middleground; NB – Northbound; NCA – National Conservation Area; NHT – National Historic Trail; NPS – National Park Service; NWR – National Wildlife Refuge; O&M – Operations and Maintenance; PFYC – Potential Fossil Yield Classification; RMP – Resource Management Plan; ROW – Right-of-way; SB – Southbound; SDA – Special Designation Area; SR – State Route; SRMA – Special Recreation Management Area; SUP – Special Use Permit; SVP – Sensitive Viewing Platform; TCP – Traditional Cultural Property; TUSK – Tule Springs Fossil Beds National Monument; UNLV – University of Nevada, Las Vegas; US – United States; USFWS – United States Fish and Wildlife Service; VAPE – Visual Area of Potential Effects; VRM – Visual Resource Management; WWEC – West-wide Energy Corridor.

*Tables Notes:* Due to rounding, the total mileage/acreage identified by ownership/management agency may not sum precisely.

<sup>a</sup> In order to accommodate construction activities within the TUSK, a 55-foot by 250-foot workspace for each structure would be disturbed for construction of the structure within the TUSK. For the 11 monopole structures within the TUSK, approximately 3.5 acres would be disturbed during construction, which would include the work area to accommodate equipment and activities.



**Table 3-96. Comparison of Alternatives for the Beatty Transmission Line Route Group**

Resource/Use Impact	Proposed Action	Beatty Transmission Alternative A	Beatty Transmission Alternative C	Beatty Transmission Alternative G	Beatty Transmission Alternative K	Beatty Transmission Alternative L
<b>Land Ownership</b> (approximate centerline miles)	<ul style="list-style-type: none"> <li>Total: 26.4                             <ul style="list-style-type: none"> <li>o BLM: 26.0</li> <li>o Private: 0.4</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Total: 26.5                             <ul style="list-style-type: none"> <li>o BLM: 26.5</li> <li>o Private: &lt;0.1</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Total: 27.1                             <ul style="list-style-type: none"> <li>o BLM: 27.1</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Total: 25.4                             <ul style="list-style-type: none"> <li>o BLM: 25.4</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Total: 26.8                             <ul style="list-style-type: none"> <li>o BLM: 26.8</li> <li>o Private: &lt;0.1</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Total: 27.5                             <ul style="list-style-type: none"> <li>o BLM: 27.5</li> <li>o Private: &lt;0.1</li> </ul> </li> </ul>
<b>Land Ownership</b> (approximate temporary ROW area acres)	<ul style="list-style-type: none"> <li>Total: 2,296.5                             <ul style="list-style-type: none"> <li>o BLM: 2,269.4</li> <li>o Private: 27.1</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Total: 2,279.4                             <ul style="list-style-type: none"> <li>o BLM: 2,274.3</li> <li>o Private: 5.1</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Total: 2,336.1                             <ul style="list-style-type: none"> <li>o BLM: 2,336.1</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Total: 2,616.0                             <ul style="list-style-type: none"> <li>o BLM: 2,582.6</li> <li>o Private: 33.5</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Total: 2,369.8                             <ul style="list-style-type: none"> <li>o BLM: 2,364.7</li> <li>o Private: 5.1</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Total: 2,447.6                             <ul style="list-style-type: none"> <li>o BLM: 2,442.5</li> <li>o Private: 5.1</li> </ul> </li> </ul>
<b>Land Ownership</b> (approximate permanent ROW area acres)	<ul style="list-style-type: none"> <li>Total: 641.2                             <ul style="list-style-type: none"> <li>o BLM: 632.0</li> <li>o Private: 9.2</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Total: 643.2                             <ul style="list-style-type: none"> <li>o BLM: 642.6</li> <li>o Private: 0.6</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Total: 658.5                             <ul style="list-style-type: none"> <li>o BLM: 658.5</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Total: 616.9                             <ul style="list-style-type: none"> <li>o BLM: 616.9</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Total: 650.7                             <ul style="list-style-type: none"> <li>o BLM: 650.1</li> <li>o Private: 0.6</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Total: 668.0                             <ul style="list-style-type: none"> <li>o BLM: 667.4</li> <li>o Private: 0.6</li> </ul> </li> </ul>
<b>Federally Listed Species:</b> How would construction, O&M, and decommissioning of the GLWP affect federally listed species and their habitats?	<ul style="list-style-type: none"> <li>No impact to Bi-State sage-grouse, Lahontan cutthroat trout, Mount Charleston blue butterfly, northwestern pond turtle, Amargosa niterwort, Ash Meadows gumplant, Ash Meadows blazingstar, Ash Meadows ivesia, Ash Meadows sunray, and Ash Meadows milkvetch.</li> <li>The Proposed Action would cross through Mojave desert tortoise suitable habitat. Based on the GLWP 2021-2023 surveys, the Proposed Action would include 20 Mojave desert tortoise burrows in the temporary ROW area and 7 burrows in the permanent ROW area. The Proposed Action would be located within 399.6 acres of Priority II connectivity habitat in the temporary ROW area and 126.1 acres in the permanent ROW area.</li> <li>The Proposed Action would not occur within suitable breeding habitat for the Yuma Ridgway's rail. Suitable habitat for the southwestern willow flycatcher and yellow-billed cuckoo has the potential to occur where the Proposed Action would cross the Amargosa River, however, these areas are considered low-quality breeding habitat. These federally listed bird species could migrate or disperse over the Proposed Action, but impacts would be negligible.</li> <li>The Proposed Action would not include occupied or unoccupied suitable habitat for spring-loving centauray in the temporary or permanent ROW areas.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action, except Beatty Transmission Alternative A would include 3.7 acres of unoccupied suitable habitat for spring-loving centauray in the temporary ROW area and 0.9 acres in the permanent ROW area.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action, except Beatty Transmission Alternative C would include 0.1 acres of unoccupied suitable habitat for spring-loving centauray in the temporary ROW area and 0.1 acres in the permanent ROW area.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action with the following exceptions:                             <ul style="list-style-type: none"> <li>o Based on the GLWP 2021-2023 surveys, Beatty Transmission Alternative G would include 34 Mojave desert tortoise burrows in the temporary ROW area and 8 burrows in the permanent ROW area. Beatty Transmission Alternative G would include 565.2 acres of Priority II connectivity habitat in the temporary ROW area and 150.9 acres in the permanent ROW area.</li> <li>o Beatty Transmission Alternative G would include 1.7 acres of unoccupied suitable habitat for spring-loving centauray in the temporary ROW area and 0.1 acres in the permanent ROW area.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action with the following exceptions:                             <ul style="list-style-type: none"> <li>o Based on the GLWP 2021-2023 surveys, Beatty Transmission Alternative K would include 29 Mojave desert tortoise burrows in the temporary ROW area and 8 burrows in the permanent ROW area. Beatty Transmission Alternative G would include approximately 457.2 acres of Priority II connectivity habitat in the temporary ROW area and approximately 128.2 acres in the permanent ROW area.</li> <li>o Beatty Transmission Alternative G would include approximately 3.7 acres of unoccupied suitable habitat for spring-loving centauray in the temporary ROW area and approximately 0.9 acres in the permanent ROW area.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action with the following exceptions:                             <ul style="list-style-type: none"> <li>o Based on the GLWP 2021-2023 surveys, Beatty Transmission Alternative L would include 15 Mojave desert tortoise burrows in the temporary ROW area and 0 burrows in the permanent ROW area. Beatty Transmission Alternative G would include approximately 598.3 acres of Priority II connectivity habitat in the temporary ROW area and approximately 192.0 acres in the permanent ROW area.</li> <li>o Beatty Transmission Alternative G would include approximately 3.7 acres of unoccupied suitable habitat for spring-loving centauray in the temporary ROW area and approximately 0.9 acres in the permanent ROW area.</li> </ul> </li> </ul>

**Table 3-95. Comparison of Alternatives for the Beatty Transmission Line Route Group  
(continued)**

Resource/Use Impact	Proposed Action	Beatty Transmission Alternative A	Beatty Transmission Alternative C	Beatty Transmission Alternative G	Beatty Transmission Alternative K	Beatty Transmission Alternative L
<p><b>General Vegetation:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect native vegetation, invasive plant species and noxious weeds, and forest resources?</p>	<ul style="list-style-type: none"> <li>The Proposed Action would have the least amount of temporary ROW area compared to the other Beatty Transmission Alternatives.</li> <li>The Proposed Action would have minimal impact to native vegetation communities due to the impact on the various vegetation communities relative to the amount that occurs in the vegetation analysis area.</li> <li>The Proposed Action would have a negligible impact on the spread and/or introduction of invasive plant species and noxious weeds because of the implementation of measures to minimize potential effects.</li> <li>The Proposed Action would have no impacts to forest resources and would not result in impacts or modifications to the existing management of forest resources by the federal ROW agencies.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>The Beatty Transmission Alternative G would have the most amount of temporary ROW area and the least amount of permanent ROW area compared to the other Beatty Transmission Alternatives.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action.</li> </ul>

**Table 3-95. Comparison of Alternatives for the Beatty Transmission Line Route Group  
(continued)**

Resource/Use Impact	Proposed Action	Beatty Transmission Alternative A	Beatty Transmission Alternative C	Beatty Transmission Alternative G	Beatty Transmission Alternative K	Beatty Transmission Alternative L
<p><b>Special Status Species:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect habitat, movement, and behavior of special status species and migratory birds?</p>	<ul style="list-style-type: none"> <li>• The Proposed Action could potentially affect special status plants, terrestrial wildlife, aquatic, and bird and bat species individuals, communities, and/or suitable or occupied habitat.</li> <li>• There are no records of black woollypod or Nevada dune beardtongue within the temporary or permanent ROW areas for the Proposed Action, though suitable habitat would be present.</li> <li>• The Proposed Action would not contain any cliff and rock outcrop landcover.</li> <li>• The Proposed Action would occur within and fully bisect the Bare to Yucca Mountains bighorn sheep seasonal movement corridor and include approximately 876.1 acres and approximately 196.6 acres within the temporary and permanent ROW areas, respectively.</li> <li>• The Proposed Action would cross the Amargosa River and surrounding springs and wetlands in addition to various desert springs and wetland areas along the Amargosa River. Approximately 9.6 acres of the temporary ROW area and approximately 2.0 acres of the permanent ROW area for the Proposed Action would occur within wetlands, which is suitable habitat for Amargosa toad and Oasis Valley pyrg.</li> <li>• Approximately 50.1 acres of the temporary ROW area and 16.7 acres of the permanent ROW area for the Proposed Action would occur within IBAs.</li> </ul>	<ul style="list-style-type: none"> <li>• Similar to the Proposed Action with the following exceptions:               <ul style="list-style-type: none"> <li>○ Approximately 36.3 acres of the temporary ROW area and approximately 11.2 acres of the permanent ROW area would occur within wetland habitat for the Beatty Transmission Alternative A.</li> <li>○ Approximately 83.3 acres of the temporary ROW area and approximately 27.8 acres of the permanent ROW area would occur within IBAs for Beatty Transmission Alternative A.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Similar to the Proposed Action with the following exceptions:               <ul style="list-style-type: none"> <li>○ Approximately 2.4 acres of the temporary ROW area and none of the permanent ROW area would occur within wetland habitat for the Beatty Transmission Alternative C.</li> <li>○ None of the temporary or permanent ROW areas would occur within IBAs for Beatty Transmission Alternative C.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Similar to the Proposed Action with the following exceptions:               <ul style="list-style-type: none"> <li>○ A known population of black woollypod would occur within the temporary and permanent ROW areas for Beatty Transmission Alternative G.</li> <li>○ Beatty Transmission Alternative G would contain approximately 22.3 acres of cliff and rock outcrop landcover within the temporary ROW area and approximately 4.5 acres within the permanent ROW area, which may provide roosting habitat for bats and nesting habitat for raptors and other cliff-nesting birds.</li> <li>○ Beatty Transmission Alternative G would include approximately 1,435.9 acres and approximately 239.5 acres within the temporary and permanent ROW areas, respectively, of the Bare to Yucca Mountains bighorn sheep seasonal movement corridor.</li> <li>○ Approximately 1.3 acres of the temporary ROW area and none of the permanent ROW area would occur within wetland habitat for Beatty Transmission Alternative G.</li> <li>○ Approximately 491.5 acres of the temporary ROW area and approximately 100.8 acres of the permanent ROW area would occur within IBAs for Beatty Transmission Alternative G.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Similar to the Proposed Action with the following exceptions:               <ul style="list-style-type: none"> <li>○ A known population of black woollypod would occur within the temporary and permanent ROW areas for the Beatty Transmission Alternative K.</li> <li>○ The Beatty Transmission Alternative K would contain approximately 21.5 acres of cliff and rock outcrop landcover within the temporary ROW area and approximately 4.5 acres within the permanent ROW area.</li> <li>○ Beatty Transmission Alternative K would include the most bighorn sheep movement corridor habitat at approximately 1,530.8 acres and approximately 255.9 acres of the Bare to Yucca Mountains bighorn sheep seasonal movement corridor within the temporary and permanent ROW areas, respectively.</li> <li>○ Approximately 31.3 acres of the temporary ROW area and approximately 10.7 acres of the permanent ROW area would occur within wetland habitat for Beatty Transmission Alternative K.</li> <li>○ Approximately 83.3 acres of the temporary ROW area and approximately 27.8 acres of the permanent ROW area would occur within IBAs for Beatty Transmission Alternative K.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Similar to the Proposed Action with the following exceptions:               <ul style="list-style-type: none"> <li>○ A known population of black woollypod would occur within the temporary and permanent ROW areas for Beatty Transmission Alternative L.</li> <li>○ Beatty Transmission Alternative L would include approximately 992.4 acres and approximately 208.2 acres within the temporary and permanent ROW areas, respectively, of the Bare to Yucca Mountains bighorn sheep seasonal movement corridor.</li> <li>○ Approximately 36.3 acres of the temporary ROW area and approximately 11.2 acres of the permanent ROW area would occur within wetland habitat for Beatty Transmission Alternative L.</li> <li>○ Approximately 83.3 acres of the temporary ROW area and approximately 27.8 acres of the permanent ROW area would occur within IBAs for Beatty Transmission Alternative L.</li> </ul> </li> </ul>

**Table 3-95. Comparison of Alternatives for the Beatty Transmission Line Route Group  
(continued)**

Resource/Use Impact	Proposed Action	Beatty Transmission Alternative A	Beatty Transmission Alternative C	Beatty Transmission Alternative G	Beatty Transmission Alternative K	Beatty Transmission Alternative L
<p><b>Bald and Golden Eagles:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect bald and golden eagles?</p>	<ul style="list-style-type: none"> <li>Four nests with the potential for supporting golden eagles were identified within the Proposed Action survey area, but no potential eagle nests were found within the temporary or permanent ROW areas.</li> <li>Impacts to golden eagles associated with noise, visual disturbance, human presence, electrocution, and injury from transmission wire collision are anticipated to be negligible. The Proposed Action would result in slight changes to golden eagle habitat and is not anticipated to result in a decrease in productivity, nest abandonment, or eagle survival.</li> <li>There would be a very small loss of foraging habitat for bald eagles because the Proposed Action temporary and permanent ROW areas do not contain this species' preferred foraging habitat.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action with except there were six nests with the potential to support golden eagles were identified within the Beatty Transmission Alternative G survey area.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action with except there were six nests with the potential to support golden eagles were identified within the Beatty Transmission Alternative K survey area.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>
<p><b>General Wildlife:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect general wildlife?</p>	<ul style="list-style-type: none"> <li>The Proposed Action impacts would include habitat loss and fragmentation; collisions with or crushing by vehicles and equipment; increased avian predation; and temporary disturbance from noise, vehicles, and human presence.</li> <li>The Proposed Action would result in approximately 27.2 acres of temporary ROW area and approximately 9.3 acres of permanent ROW area within the Atwood Preserve boundaries.</li> <li>Approximately 9.6 acres of the temporary ROW area and approximately 2.0 acres of the permanent ROW area for the Proposed Action would occur within wetland habitats (i.e., marsh, riparian woodlands, and playas).</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action with the following exceptions: <ul style="list-style-type: none"> <li>Beatty Transmission Alternative A would include temporary and permanent ROW areas (approximately 5.1 acres and 0.6 acres, respectively) within the Atwood Preserve but would avoid placing structures within the Atwood Preserve by spanning over the preserve boundary.</li> <li>Approximately 36.3 acres of the temporary ROW area and approximately 11.2 acres of the permanent ROW area would occur within wetland habitat for Beatty Transmission Alternative A.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action with the following exceptions: <ul style="list-style-type: none"> <li>Beatty Transmission Alternative C would avoid the Atwood Preserve.</li> <li>Beatty Transmission Alternative C would include approximately 2.4 acres of emergent marsh habitat within the temporary ROW area, which has beneficial habitat components for wildlife comparable to the Atwood Preserve.</li> <li>Approximately 2.4 acres of the temporary ROW area would occur within wetland habitat and there would be no wetland habitat within the permanent ROW area for Beatty Transmission Alternative C</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action with the following exceptions: <ul style="list-style-type: none"> <li>Beatty Transmission Alternative G would include the most temporary ROW area and the least amount of permanent ROW area compared to the other Beatty Transmission Alternatives.</li> <li>Beatty Transmission Alternative G would avoid the Atwood Preserve.</li> <li>Approximately 1.3 acres of the temporary ROW area and none of the permanent ROW area would occur within wetland habitat for Beatty Transmission Alternative G</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action with the following exceptions: <ul style="list-style-type: none"> <li>Beatty Transmission Alternative K would include temporary and permanent ROW areas (approximately 5.1 acres and 0.6 acres, respectively) within the Atwood Preserve but would avoid placing structures within the Preserve by spanning over the preserve boundary (same as Beatty Transmission Alternatives A and L).</li> <li>Approximately 31.3 acres of the temporary ROW area and approximately 10.7 acres of the permanent ROW area would occur within wetland habitat for Beatty Transmission Alternative K.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action with the following exceptions: <ul style="list-style-type: none"> <li>Beatty Transmission Alternative L would include temporary and permanent ROW areas (approximately 5.1 acres and approximately 0.6 acres, respectively) within the Atwood Preserve but would avoid placing structures within the Preserve by spanning over the preserve boundary (same as Beatty Transmission Alternatives A and L).</li> <li>Approximately 36.3 acres of the temporary ROW area and approximately 11.2 acres of the permanent ROW area would occur within wetland habitat for Beatty Transmission Alternative L.</li> </ul> </li> </ul>
<p><b>Cultural Resources:</b> Would historic properties be affected by the construction, O&amp;M, and decommissioning of the GLWP?</p>	<ul style="list-style-type: none"> <li>Within the Proposed Action Cultural Resources DAPE/VAPE, 34 cultural resource sites/historic properties would have adverse effects, 8 would have no adverse effects, and 88 would have no effects.</li> </ul>	<ul style="list-style-type: none"> <li>Within the Beatty Transmission Alternative A Cultural Resources DAPE/VAPE, 35 cultural resource sites/historic properties would have adverse effects, 8 would have no adverse effects, and 84 would have no effects.</li> </ul>	<ul style="list-style-type: none"> <li>Within the Beatty Transmission Alternative C Cultural Resources DAPE/VAPE, 35 cultural resource sites/historic properties would have adverse effects, 6 would have no adverse effects, and 93 would have no effects.</li> </ul>	<ul style="list-style-type: none"> <li>Within the Beatty Transmission Alternative G Cultural Resources DAPE/VAPE, 19 cultural resource sites/historic properties would have adverse effects, 15 would have no adverse effects, and 107 would have no effects.</li> </ul>	<ul style="list-style-type: none"> <li>Within the Beatty Transmission Alternative K Cultural Resources DAPE/VAPE, 24 cultural resource sites/historic properties would have adverse effects, 30 would have no adverse effects, and 91 would have no effects.</li> </ul>	<ul style="list-style-type: none"> <li>Within the Beatty Transmission Alternative L Cultural Resources DAPE/VAPE, 36 cultural resource sites/historic properties would have adverse effects, 9 would have no adverse effects, and 104 would have no effects.</li> </ul>

**Table 3-95. Comparison of Alternatives for the Beatty Transmission Line Route Group  
(continued)**

Resource/Use Impact	Proposed Action	Beatty Transmission Alternative A	Beatty Transmission Alternative C	Beatty Transmission Alternative G	Beatty Transmission Alternative K	Beatty Transmission Alternative L
<p><b>Native American Religious Concerns:</b> How would sacred sites or TCPs be affected by construction, O&amp;M, and decommissioning of the GLWP?</p>	<ul style="list-style-type: none"> <li>The Proposed Action may directly and/or indirectly impact some areas of Native American religious concern. Direct impacts would come from ground disturbance during construction, restricting access to sacred sites, and visual changes due to new infrastructure. Ground-disturbing activities could have direct physical impacts on prayer sites such as displacement, damage, or destruction of features.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>
<p><b>Paleontological Resources:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect paleontological resources?</p>	<ul style="list-style-type: none"> <li>The Proposed Action would cross approximately 92.6 acres of very low (PFYC 1), 668.0 acres of low (PFYC 2), approximately 5.3 acres of moderate (PFYC 3), and approximately 518.0 acres of unknown (PFYC U) paleontological potentials.</li> </ul>	<ul style="list-style-type: none"> <li>Beatty Transmission Alternative A would cross approximately 116.3 acres of very low (PFYC 1), approximately 609.4 acres of low (PFYC 2), approximately 5.3 acres of moderate (PFYC 3), and approximately 557.0 acres of unknown (PFYC U) paleontological potential.</li> </ul>	<ul style="list-style-type: none"> <li>Beatty Transmission Alternative C would cross approximately 87.5 acres of very low (PFYC 1), approximately 614.7 acres of low (PFYC 2), approximately 5.3 acres of moderate (PFYC 3), and approximately 617.5 acres of unknown (PFYC U) paleontological potentials.</li> </ul>	<ul style="list-style-type: none"> <li>Beatty Transmission Alternative G would cross approximately 288.5 acres of very low (PFYC 1), approximately 454.9 acres of low (PFYC 2), approximately 5.3 acres of moderate (PFYC 3), and approximately 491.5 acres of unknown (PFYC U) paleontological potentials.</li> </ul>	<ul style="list-style-type: none"> <li>Beatty Transmission Alternative K would cross approximately 188.2 acres of very low (PFYC 1), 530.0 acres of low (PFYC 2), 5.3 acres of moderate (PFYC 3), and 579.3 acres of unknown (PFYC U) paleontological potentials.</li> </ul>	<ul style="list-style-type: none"> <li>Beatty Transmission Alternative L would cross approximately 173.8 acres of very low (PFYC 1), approximately 666.9 acres of low (PFYC 2), approximately 0.0 acres of moderate (PFYC 3), and approximately 496.7 acres of unknown (PFYC U) paleontological potentials.</li> </ul>
<p><b>Earth Resources:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect the earth resources of geology, soils, and minerals?</p>	<ul style="list-style-type: none"> <li>Wind erosion susceptibility would be low for the soil associated with the Proposed Action.</li> <li>Except for less than one percent of the temporary ROW area, the soils for the Proposed Action would be considered to have low water erosion and runoff.</li> <li>There is no prime farmland if irrigated, irrigated and drained, or irrigated and reclaimed of excess salts and sodium that would be crossed by the Proposed Action temporary or permanent ROW areas. Approximately 80.9 acres of farmland of statewide importance, if irrigated, would be disturbed within the permanent ROW area by the Proposed Action.</li> <li>The Proposed Action would result in approximately 591.5 acres and approximately 134.1 acres, respectively, of temporary and permanent ROW areas within the Bare Mountain Mining District.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action with the following exception: <ul style="list-style-type: none"> <li>The temporary and permanent ROW areas for the Beatty Transmission Alternative G would disturb approximately 1,174.1 acres and approximately 199.2 acres, respectively, within the Bare Mountain and Bullfrog mining districts and is the only Beatty Transmission Alternative that would cross two mining districts.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action with the exception: <ul style="list-style-type: none"> <li>Beatty Transmission Alternative K would result in approximately 778.1 acres of temporary ROW area and approximately 133.2 acres of permanent ROW area in the Bare Mountain Mining District.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action with the exceptions: <ul style="list-style-type: none"> <li>Beatty Transmission Alternative L would disturb the least amount of farmland of statewide importance, if irrigated at approximately 22.2 acres within the permanent ROW area.</li> <li>Beatty Transmission Alternative L would result in approximately 576.8 acres of temporary ROW area and approximately 121.8 acres of permanent ROW area in the Bare Mountain Mining District</li> </ul> </li> </ul>

**Table 3-95. Comparison of Alternatives for the Beatty Transmission Line Route Group  
(continued)**

Resource/Use Impact	Proposed Action	Beatty Transmission Alternative A	Beatty Transmission Alternative C	Beatty Transmission Alternative G	Beatty Transmission Alternative K	Beatty Transmission Alternative L
<p><b>Air Quality, Climate Change, and Greenhouse Gas Emissions:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect air quality?</p>	<ul style="list-style-type: none"> <li>The Proposed Action would result in negligible impacts to air quality from low-level particulate matter emissions from construction, O&amp;M, and decommissioning activities that may generate fugitive dust (particulates).</li> <li>The construction of the Proposed Action would result in GHG emissions over the short-term. The majority of these emissions would occur during the construction and decommissioning phases. Minimal increases could potentially occur during O&amp;M.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>
<p><b>Special Designation Areas:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect SDAs?</p>	<ul style="list-style-type: none"> <li>The Proposed Action is located within approximately four miles of the Timber Mountain Caldera ACEC and would not cause changes in primary use, use patterns, or functions and would not alter the management of the ACEC.</li> <li>The proposed Action would cross through the Bullfrog-Beatty ERMA east of US 95. Impacts to the Bullfrog-Beatty ERMA from the Proposed Action would not alter, nor require new management prescriptions and objectives for this ERMA.</li> <li>The Proposed Action would intersect one inventoried LWC unit (NV-050-363), resulting in an approximately 21 percent loss to the unit, but would not reduce the entire unit below the 5,000-acre threshold for a LWC unit.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action, except Beatty Transmission Alternative C would be located within approximately 1.5 miles of the Timber Mountain Caldera ACEC.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action except Beatty Transmission Alternative G would result in a less than one percent loss to the inventoried LWC unit NV-050-363 (same as Beatty Transmission Alternatives K and L).</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action except Beatty Transmission Alternative K would result in a less than one percent loss to the inventoried LWC unit NV-050-363 (same as Beatty Transmission Alternatives G and L).</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action except Beatty Transmission Alternative L would result in an approximately 29 percent loss to the inventoried LWC unit NV-050-363 (same as Beatty Transmission Alternatives G and K).</li> </ul>
<p><b>National Historic Trails and Trails Under Study for Congressional Designation:</b> How would the construction, O&amp;M, and decommissioning of the GLWP affect NHTs (Old Spanish, California, and Pony Express) and feasible and suitable portions of the Central Overland Emigrant Route?</p>	<ul style="list-style-type: none"> <li>No impact.</li> </ul>	<ul style="list-style-type: none"> <li>No impact.</li> </ul>	<ul style="list-style-type: none"> <li>No impact.</li> </ul>	<ul style="list-style-type: none"> <li>No impact.</li> </ul>	<ul style="list-style-type: none"> <li>No impact.</li> </ul>	<ul style="list-style-type: none"> <li>No impact.</li> </ul>

**Table 3-95. Comparison of Alternatives for the Beatty Transmission Line Route Group  
(continued)**

Resource/Use Impact	Proposed Action	Beatty Transmission Alternative A	Beatty Transmission Alternative C	Beatty Transmission Alternative G	Beatty Transmission Alternative K	Beatty Transmission Alternative L
<p><b>Land Use, Realty, and Indian Trust Assets:</b> What would the physical disturbance or other impacts to operations of existing ROWs or land uses be with the construction, O&amp;M, and decommissioning of the GLWP?</p>	<ul style="list-style-type: none"> <li>The Proposed Action would be the only Beatty Transmission Alternative that would include ground disturbance within the Atwood Preserve. The Proposed Action would disturb approximately 27.1 acres of the Atwood Preserve in the temporary ROW area and approximately 9.2 acres of the Preserve in the permanent ROW area.</li> <li>Approximately 59 percent (15.6 miles) of the 26.5-mile Proposed Action would cross the NTTR Range 77A restricted airspace in addition to approximately 6 percent (1.7 miles) of the Proposed Action that would cross the NTTR federal land transfer area.</li> <li>The Proposed Action would cross a total of 7 Beatty Trail System routes a total of 10 times. These impacts on the use of the Beatty Trail System would be temporary.</li> <li>The Proposed Action would cross the approximately 157,181-acre Bullfrog HMA and include approximately 1,685.6 acres of temporary ROW area within the HMA.</li> <li>Approximately 81 percent (21.4 miles) of the Proposed Action would cross mining claim sections.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action with the following exceptions: <ul style="list-style-type: none"> <li>Beatty Transmission Alternative A would impact the existing private land uses but would not include ground disturbance within the Atwood Preserve. A 200-foot permanent ROW area (approximately 0.2 acres) would be needed on the Preserve for Beatty Transmission Alternative A for the O&amp;M of the transmission line.</li> <li>Beatty Transmission Alternative A approximately 59 percent (15.7 miles) would be within the NTTR's Range 77A restricted airspace. Approximately 6 percent (1.7 miles) of Beatty Transmission Alternative A would cross through the NTTR federal land transfer area.</li> <li>Beatty Transmission Alternative A would have similar impacts to the Bullfrog HMA as the Proposed Action and Beatty Transmission Alternatives K and L.</li> <li>Beatty Transmission Alternative A would cross similar amounts of mining claim sections as the Proposed Action and Beatty Transmission Alternatives G and K.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action, with the following exceptions: <ul style="list-style-type: none"> <li>Beatty Transmission Alternative C would avoid any ground disturbance within the Atwood Preserve.</li> <li>Beatty Transmission Alternative C would be within the NTTR's Range 77A restricted airspace. In addition, approximately 8 percent (6.8 miles) of Beatty Transmission Alternative C would cross the NTTR federal land transfer area.</li> <li>Beatty Transmission Alternative C would cross a total of 4 Beatty Trail System routes a total of 6 times.</li> <li>Beatty Transmission Alternative C would have less impact to the Bullfrog HMA than the Proposed Action and the other Beatty Transmission Alternatives.</li> <li>Beatty Transmission Alternative C would cross less claim sections than the Proposed Action and Beatty Transmission Alternatives A, G, and K. The amount would be similar to Beatty Transmission Alternative L.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action, with the following exceptions: <ul style="list-style-type: none"> <li>Beatty Transmission Alternative G would avoid any ground disturbance within the Atwood Preserve.</li> <li>Beatty Transmission Alternative G would not impact military training operations in the NTTR's Range 77A restricted airspace or the NTTR federal land transfer area.</li> <li>Beatty Transmission Alternative G would cross a total of 11 Beatty Trail System routes a total of 17 times.</li> <li>Beatty Transmission Alternative G would have greater impacts to the Bullfrog HMA than the other Beatty Transmission Alternatives.</li> <li>Beatty Transmission Alternative G would cross similar amounts of mining claim sections as the Proposed Action and Beatty Transmission Alternatives A and K.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action, with the following exceptions: <ul style="list-style-type: none"> <li>Beatty Transmission Alternative K would avoid any ground disturbance within the Atwood Preserve. Similar to Beatty Transmission Alternatives A and L, a 200-foot permanent ROW area (approximately 0.2 acres) would be needed on the Preserve for Beatty Transmission Alternative K for the O&amp;M of the transmission line.</li> <li>Approximately 36 percent (9.7 miles) of Beatty Transmission Alternative K would be within the NTTR's Range 77A restricted airspace but would not cross the NTTR federal land transfer area.</li> <li>Beatty Transmission Alternative K would cross a total of 11 Beatty Trail System routes a total of 15 times.</li> <li>Beatty Transmission Alternative K would have similar impacts to the Bullfrog HMA as the Proposed Action and Beatty Transmission Alternatives A and L.</li> <li>Beatty Transmission Alternative K would cross similar amounts of mining claim sections as the Proposed Action and Beatty Transmission Alternatives A and G.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action, with the following exceptions: <ul style="list-style-type: none"> <li>Beatty Transmission Alternative L would avoid any ground disturbance within the Atwood Preserve. Similar to Beatty Transmission Alternatives A and K, a 200-foot permanent ROW area (approximately 0.2 acres) would be needed on the Preserve for Beatty Transmission Alternative A for the O&amp;M of the transmission line.</li> <li>Approximately 59 percent (16.3 miles) of Beatty Transmission Alternative L would be within the NTTR's Range 77A restricted airspace but would not cross or impact military training operations in the NTTR federal land transfer area.</li> <li>Beatty Transmission Alternative L would cross a total of 9 Beatty Trail System routes a total of 15 times.</li> <li>Beatty Transmission Alternative L would have similar impacts to the Bullfrog HMA as the Proposed Action and Beatty Transmission Alternatives A and K.</li> <li>Beatty Transmission Alternative L would cross less claim sections than the Proposed Action and Beatty Transmission Alternatives A, G, and K and would be similar to Beatty Transmission Alternative C.</li> </ul> </li> </ul>
<p><b>Water Resources:</b> How would the construction, O&amp;M, and decommissioning of the GLWP affect water resources?</p>	<ul style="list-style-type: none"> <li>The Proposed Action would include approximately 191 surface water crossings in the temporary ROW area and approximately 76 surface water crossings in the permanent ROW area. There would be approximately 54.6 acres of the temporary ROW area and approximately 16.8 acres of the permanent ROW area in high flood risk areas.</li> </ul>	<ul style="list-style-type: none"> <li>Beatty Transmission Alternative A would include approximately 187 surface water crossings in the temporary ROW area and approximately 73 surface water crossings in the permanent ROW area. There would be approximately 51.8 acres of the temporary ROW area and approximately 15.7 acres of the permanent ROW area in high flood risk areas.</li> </ul>	<ul style="list-style-type: none"> <li>Beatty Transmission Alternative C would include approximately 156 surface water crossings in the temporary ROW area and approximately 68 surface water crossings in the permanent ROW area. There would be approximately 17.8 acres of the temporary ROW area and approximately 4.4 acres of the permanent ROW area in high flood risk areas.</li> </ul>	<ul style="list-style-type: none"> <li>Beatty Transmission Alternative G would include approximately 138 surface water crossings in the temporary ROW area and approximately 54 surface water crossings in the permanent ROW area. There would be approximately 37.1 acres of the temporary ROW area and approximately 6.1 acres of the permanent ROW area in high flood risk areas.</li> </ul>	<ul style="list-style-type: none"> <li>Beatty Transmission Alternative K would include approximately 173 surface water crossings in the temporary ROW area and approximately 65 surface water crossings in the permanent ROW area. There would be approximately 59.6 acres of the temporary ROW area and approximately 16.8 acres of the permanent ROW area in high flood risk areas.</li> </ul>	<ul style="list-style-type: none"> <li>Beatty Transmission Alternative L would include approximately 176 surface water crossings in the temporary ROW area and approximately 67 surface water crossings in the permanent ROW area. There would be approximately 80.3 acres of the temporary ROW area and approximately 25.4 acres of the permanent ROW area in high flood risk areas.</li> </ul>

**Table 3-95. Comparison of Alternatives for the Beatty Transmission Line Route Group  
(continued)**

Resource/Use Impact	Proposed Action	Beatty Transmission Alternative A	Beatty Transmission Alternative C	Beatty Transmission Alternative G	Beatty Transmission Alternative K	Beatty Transmission Alternative L
<p><b>Visual Resources:</b> How would the construction, O&amp;M, and decommissioning of the GLWP affect visual resources?</p>	<ul style="list-style-type: none"> <li>The Proposed Action permanent ROW area would cross approximately 474.3 acres of Scenic Quality Class B landscapes and 166.9 acres of Class C landscapes. The Proposed Action would create changes in the landscape character that would range from attracting attention to dominating the setting.</li> <li>Motorists traveling along the US 95 would have views of the Proposed Action for a total of approximately 16 minutes.</li> <li>The Proposed Action would be visible from approximately 8 percent in the FG of the Beatty SVP and approximately 7 percent within the MG (similar to Beatty Transmission Alternative L). The portions of the Proposed Action visible within the FG of the Beatty SVP would vary from being visually discernible to attracting attention.</li> <li>The Proposed Action would be in conformance with the VRM Class IV designated landscape because the objective of this VRM classification provides for activities that may dominate the view and be a major focus of viewer attention.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action, with the following exceptions:                             <ul style="list-style-type: none"> <li>Beatty Transmission Alternative C would be visible from approximately 1 percent in the FG of the Beatty SVP in the FG and 12 percent within the MG. Because the majority of views of Beatty Transmission Alternative C would be from the MG of the Beatty SVP, the effects on views would be less than Beatty Transmission Alternatives A, G, and K, and the Proposed Action.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action, with the following exceptions:                             <ul style="list-style-type: none"> <li>Beatty Transmission Alternative G permanent ROW area would cross approximately 364.2 acres of Scenic Quality Class B landscapes and 252.7 acres of Class C landscapes.</li> <li>Motorists traveling along US 95 would have views of Beatty Transmission Alternative G for a total of approximately 28 minutes.</li> <li>Beatty Transmission Alternative G would be visible from approximately 42 percent in the FG of the Beatty SVP and 13 percent within the MG. With Beatty Transmission Alternative G, the effects on views in the FG of the Beatty SVP would be notably greater than the other Beatty Transmission Alternatives.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action, with the following exceptions:                             <ul style="list-style-type: none"> <li>Beatty Transmission Alternative K permanent ROW area would cross approximately 446.7 acres of Scenic Quality Class B landscapes and approximately 203.1 acres of Class C landscapes.</li> <li>Motorists traveling along US 95 would have views of Beatty Transmission Alternative K for a total of approximately 23 minutes.</li> <li>Beatty Transmission Alternative K would be visible from approximately 21 percent of the Beatty SVP in the FG and approximately 17 percent within the MG. With the Beatty Transmission Alternative K, to a lesser extent than Beatty Transmission Alternative G, the effects on views in the FG of the Beatty SVP would be notably greater.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action, with the following exceptions:                             <ul style="list-style-type: none"> <li>Beatty Transmission Alternative L permanent ROW area would cross approximately 489.7 acres of Scenic Quality Class B landscapes and approximately 178.3 acres of Class C landscapes.</li> <li>Motorists traveling along US 95 would have views of Beatty Transmission Alternative K for a total of approximately 19 minutes.</li> <li>Beatty Transmission Alternative K would be visible from approximately 9 percent of the Beatty SVP in the FG and approximately 8 percent within the MG. The effects on views in the FG of the Beatty SVP would be similar to the Proposed Action and the Beatty Transmission Alternative A.</li> </ul> </li> </ul>
<p><b>Socioeconomic Resources and Environmental Justice:</b> What impact would the construction, O&amp;M, and decommissioning of the GLWP have on socioeconomic resources and EJ populations?</p>	<ul style="list-style-type: none"> <li>The Proposed Action would include short-term economic impacts from the increased demand for public services associated with the construction workforce. Additionally, there would be long-term economic impacts associated with the generation of tax revenues. The Proposed Action would have no disproportionate impacts on EJ populations.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>
<p><b>Public Health and Safety, Noise, Fire Management, and Waste:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect public health and safety, noise, fire management, and waste?</p>	<ul style="list-style-type: none"> <li>The Proposed Action would have negligible impacts on public health and safety, noise, and hazardous waste materials and no impact on fire management.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>



**Table 3-95. Comparison of Alternatives for the Beatty Transmission Line Route Group  
(continued)**

Resource/Use Impact	Proposed Action	Beatty Transmission Alternative A	Beatty Transmission Alternative C	Beatty Transmission Alternative G	Beatty Transmission Alternative K	Beatty Transmission Alternative L
BLM RMP Conformance	<ul style="list-style-type: none"> <li>• VRM: Conforms</li> <li>• WWEC:               <ul style="list-style-type: none"> <li>○ Modify WWEC 18-224 to align with the Proposed Action transmission route between MP 173.0 to MP 178.0.</li> <li>○ De-designate portions of WWEC 18-224 where the Proposed Action would be outside of the designated WWEC.</li> <li>○ Designate new WWEC 18-224 following the Proposed Action route.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• VRM: Conforms</li> <li>• WWEC:               <ul style="list-style-type: none"> <li>○ Modify WWEC 18-224 to align with Beatty Transmission Alternative A between MP 197.5 to MP 202.0.</li> <li>○ De-designate portions of WWEC 18-224 where Beatty Transmission Alternative A would be outside of the designated WWEC.</li> <li>○ Designate new WWEC 18-224 following Beatty Transmission Alternative A.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• VRM: Conforms</li> <li>• WWEC:               <ul style="list-style-type: none"> <li>○ Modify WWEC 18-224 to align with Beatty Transmission Alternative C between MP 193.3 to MP 205.2.</li> <li>○ De-designate portions of WWEC 18-224 where Beatty Transmission Alternative C would be outside of the designated WWEC.</li> <li>○ Designate new WWEC 18-224 following Beatty Transmission Alternative C.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• VRM: Conforms</li> <li>• WWEC:               <ul style="list-style-type: none"> <li>○ Modify WWEC 18-224 to align with Beatty Transmission Alternative G between MP 193.3 to MP 211.2.</li> <li>○ De-designate portions of WWEC 18-224 where Beatty Transmission Alternative G would be outside of the designated WWEC.</li> <li>○ Designate new 1 WWEC 18-224 following Beatty Transmission Alternative G.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• VRM: Conforms</li> <li>• WWEC:               <ul style="list-style-type: none"> <li>○ Modify WWEC 18-224 to align with Beatty Transmission Alternative K between MP 193.3 to MP 197.0, MP 197.5 to MP 202.0, and between MP 202.1 to MP 211.2.</li> <li>○ De-designate portions of WWEC 18-224 where Beatty Transmission Alternative K would be outside of the designated WWEC.</li> <li>○ Designate new WWEC 18-224 following Beatty Transmission Alternative K.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• VRM: Conforms</li> <li>• WWEC:               <ul style="list-style-type: none"> <li>○ Modify WWEC 18-224 to align with Beatty Transmission Alternative L between MP 193.3 to MP 197.0, MP 197.5 to MP 202.0, and MP 207.5 to and MP 219.9.</li> <li>○ De-designate portions of WWEC 18-224 where Beatty Transmission Alternative L would be outside of the designated WWEC.</li> <li>○ Designate new WWEC 18-224 following the Beatty Transmission Alternative L.</li> </ul> </li> </ul>

*Table Acronym(s):* ACEC – Area of Critical Environmental Concern; BLM – Bureau of Land Management; DAPE – Direct Area of Potential Effects; EJ – Environmental Justice; ERMA – Extensive Recreation Management Area; FG – Foreground; GHG – Greenhouse Gas; GLWP – Greenlink West Transmission Project; HMA – Herd Management Area; IBA – Important Bird area; LWC – Lands With Wilderness Characteristics; MG – Middleground; MP – Milepost; NHT – National Historic Trail; NTTR – Nevada Test Training Range; O&M – Operations and Maintenance; PFYC – Potential Fossil Yield Classification; RMP – Resource Management Plan; ROW – Right-of-way; SDA – Special Designation Area; SVP – Sensitive Viewing Platform; TCP – Traditional Cultural Property; US – United States; VAPE – Visual Area of Potential Effects; VRM – Visual Resource Management; WWEC – West-wide Energy Corridor.  
*Tables Notes:* Due to rounding, the total mileage/acreage identified by ownership/management agency may not sum precisely.

**Table 3-97. Comparison of Alternatives for the Scotty's Junction and Mason Valley WMA Transmission Line Route Groups**

Resource/Use Impact	Scotty's Junction Proposed Action	Scotty's Junction Transmission Alternative A	Scotty's Junction Transmission Alternative B	Mason Valley WMA Proposed Action	Mason Valley WMA Transmission Alternative A
Land Ownership (approximate centerline miles)	<ul style="list-style-type: none"> <li>• Total: 15.1</li> <li>○ BLM: 12.2</li> <li>○ Private: 2.9</li> </ul>	<ul style="list-style-type: none"> <li>• Total: 16.2</li> <li>○ BLM: 15.7</li> <li>○ Private: 0.5</li> </ul>	<ul style="list-style-type: none"> <li>• Total: 14.8</li> <li>○ BIA: 1.6</li> <li>○ BLM: 10.5</li> <li>○ Private: 2.7</li> </ul>	<ul style="list-style-type: none"> <li>• Total: 4.9</li> <li>○ BLM: 1.2</li> <li>○ NDSL: 3.4</li> <li>○ Private: 0.3</li> </ul>	<ul style="list-style-type: none"> <li>• Total: 7.0</li> <li>○ BLM: 6.0</li> <li>○ NDSL: 0.2</li> <li>○ Private: 0.8</li> </ul>
Land Ownership (approximate temporary ROW area acres)	<ul style="list-style-type: none"> <li>• Total: 1,104.8</li> <li>○ BLM: 892.6</li> <li>○ DOD: 1.2</li> <li>○ Private: 210.9</li> </ul>	<ul style="list-style-type: none"> <li>• Total: 1,185.3</li> <li>○ BLM: 1,148.3</li> <li>○ Private: 36.9</li> </ul>	<ul style="list-style-type: none"> <li>• Total: 1,084.2</li> <li>○ BIA: 118.7</li> <li>○ BLM: 766.8</li> <li>○ Private: 198.8</li> </ul>	<ul style="list-style-type: none"> <li>• Total: 359.3</li> <li>○ BLM: 89.3</li> <li>○ NDSL: 216.1</li> <li>○ Private: 53.8</li> </ul>	<ul style="list-style-type: none"> <li>• Total: 695.6</li> <li>○ BLM: 520.6</li> <li>○ NDSL: 72.8 (actual Mason Valley WMA temporary ROW area would be 15.6 acres)</li> <li>○ Private: 102.2</li> </ul>
Land Ownership (approximate permanent ROW area acres)	<ul style="list-style-type: none"> <li>• Total: 366.8</li> <li>○ BLM: 296.9</li> <li>○ Private: 69.8</li> </ul>	<ul style="list-style-type: none"> <li>• Total: 393.7</li> <li>○ BLM: 381.4</li> <li>○ Private: 12.3</li> </ul>	<ul style="list-style-type: none"> <li>• Total: 360.0</li> <li>○ BIA: 39.6</li> <li>○ BLM: 254.2</li> <li>○ Private: 66.3</li> </ul>	<ul style="list-style-type: none"> <li>• Total: 118.4</li> <li>○ BLM: 29.1</li> <li>○ NDSL: 82.2</li> <li>○ Private: 7.2</li> </ul>	<ul style="list-style-type: none"> <li>• Total: 170.1</li> <li>○ BLM: 145.1</li> <li>○ NDSL: 5.2</li> <li>○ Private: 19.8</li> </ul>
<b>Federally Listed Species:</b> How would construction, O&M, and decommissioning of the GLWP affect federally listed species and their habitat?	<ul style="list-style-type: none"> <li>• No impact to Bi-State sage-grouse, Lahontan cutthroat trout, Mount Charleston blue butterfly, northwestern pond turtle, Amargosa niterwort, Ash Meadows gumplant, Ash Meadows blazingstar, Ash Meadows ivesia, Ash Meadows sunray, Ash Meadows milkvetch, or spring-loving centaury.</li> <li>• The Proposed Action would cross through Mojave desert tortoise suitable habitat. Based on the GLWP 2021-2023 surveys, the Proposed Action would include one Mojave desert tortoise burrow in the permanent ROW area only (none in the temporary ROW area) and would not occur within priority connectivity habitat for Mojave desert tortoise.</li> <li>• The Proposed Action would not occur within suitable breeding habitat for the southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail. These federally listed bird species could migrate or disperse over the Proposed Action, but impacts would be negligible.</li> </ul>	<ul style="list-style-type: none"> <li>• Similar to the Proposed Action except based on the GLWP 2021-2023 surveys, Scotty's Junction Transmission Alternative A would not include any Mojave desert tortoise burrows in the temporary or permanent ROW areas.</li> </ul>	<ul style="list-style-type: none"> <li>• Similar to the Proposed Action except based on the GLWP 2021-2023 surveys, Scotty's Junction Transmission Alternative B would not include any Mojave desert tortoise burrows in the temporary or permanent ROW areas.</li> </ul>	<ul style="list-style-type: none"> <li>• No impact to Bi-State sage-grouse, Mount Charleston blue butterfly, Mojave desert tortoise, northwestern pond turtle, Amargosa niterwort, Ash Meadows gumplant, Ash Meadows blazingstar, Ash Meadows ivesia, Ash Meadows sunray, Ash Meadows milkvetch, or spring-loving centaury.</li> <li>• The Walker River crossing for the Proposed Action would contain suitable habitat for Lahontan cutthroat trout. Approximately 15.6 acres of the temporary and Approximately 6.0 acres of the permanent ROW areas would occur within riparian habitat along the Walker River crossings.</li> <li>• The Proposed Action would not occur within suitable breeding habitat for the southwestern willow flycatcher and Yuma Ridgway's rail. Breeding habitat for the yellow-billed cuckoo has the potential to occur where the Proposed Action would cross the Walker River, however, these areas are considered low-quality breeding habitat. These federally listed bird species could migrate or disperse over the Proposed Action, but impacts would be negligible.</li> </ul>	<ul style="list-style-type: none"> <li>• Similar to the Proposed Action, except Mason Valley WMA Transmission Alternative A would contain less acres in riparian habitat (approximately 12.8 acres of the temporary and Approximately 2.0 acres of the permanent ROW areas).</li> </ul>

**Table 3-96. Comparison of Alternatives for the Scotty's Junction and Mason Valley WMA Transmission Line Route Groups  
(continued)**

Resource/Use Impact	Scotty's Junction Proposed Action	Scotty's Junction Transmission Alternative A	Scotty's Junction Transmission Alternative B	Mason Valley WMA Proposed Action	Mason Valley WMA Transmission Alternative A
<p><b>General Vegetation:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect native vegetation, invasive plant species and noxious weeds, and forest resources?</p>	<ul style="list-style-type: none"> <li>The amount of potential temporary and permanent disturbance to native vegetation communities from the Proposed Action would be minimal compared to amount of these populations in the vegetation analysis area.</li> <li>The Proposed Action would have a negligible impact on the spread and/or introduction of invasive plant species and noxious weeds because of the implementation of measures to minimize potential effects.</li> <li>The Proposed Action would have no impacts to forest resources and would not result in impacts or modifications to the existing management of forest resources by the federal ROW agencies.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action, with the following exceptions:                             <ul style="list-style-type: none"> <li>Scotty's Junction Transmission Alternative A would result in more acres of temporary and permanent ROW areas compared to the Proposed Action and Scotty's Junction Transmission Alternative B.</li> <li>Scotty's Junction Transmission Alternative A would result in approximately 8.6 acres of temporary and approximately 4.3 acres of permanent ROW areas within woodland areas, resulting in negligible impacts to forest resources, and would not result in impacts or modifications to the existing management of forest resources by the federal ROW agencies.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action, with the following exceptions:                             <ul style="list-style-type: none"> <li>Scotty's Junction Transmission Alternative B would result in more acres of temporary and permanent ROW areas compared to the Proposed Action and Scotty's Junction Transmission Alternative A.</li> <li>Scotty's Junction Transmission Alternative B would result in approximately 1.3 acres of temporary and approximately 0.4 acres of permanent ROW areas within woodland areas, resulting in negligible impacts to forest resources, and would not result in impacts or modifications to the existing management of forest resources by the federal ROW agencies.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>The amount of potential temporary and permanent disturbance to native vegetation communities from the Proposed Action would be minimal compared to amount of these populations in the vegetation analysis area.</li> <li>The Proposed Action would have a negligible impact on the spread and/or introduction of invasive plant species and noxious weeds because of the implementation of measures to minimize potential effects.</li> <li>The Proposed Action would result in approximately 15.6 acres of temporary and approximately 6.0 acre of permanent ROW areas within woodland areas, resulting in negligible impacts to forest resources, and would not result in impacts or modifications to the existing management of forest resources by the federal ROW agencies.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action, with the following exceptions:                             <ul style="list-style-type: none"> <li>Mason Valley WMA Transmission Alternative A would result in approximately 336.4 more acres of temporary ROW area and approximately 51.6 more acres of permanent ROW area, in comparison to the Proposed Action.</li> <li>Mason Valley WMA Transmission Alternative A would result in approximately 12.8 acres of temporary and approximately 2.0 acres of permanent ROW areas within woodland areas and would not result in impacts or modifications to the existing management of forest resources by the federal ROW agencies.</li> </ul> </li> </ul>
<p><b>Special Status Species:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect habitat, movement, and behavior of special status species and migratory birds?</p>	<ul style="list-style-type: none"> <li>The Proposed Action would include approximately 1,104.8 acres of temporary ROW area and approximately 366.8 acres of permanent ROW area that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat.</li> <li>One special status plant, Nevada dune beardtongue, has been recorded in the vicinity of the Proposed Action. The temporary and permanent ROW areas of the Proposed Action would not occur in areas of known records of this plant, though suitable habitat would be present.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action except Scotty's Junction Transmission Alternative A would include approximately 1,185.3 acres of the temporary ROW area and approximately 393.7 acres of the permanent ROW area that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action, except the Scotty's Junction Transmission Alternative B would include approximately 1,084.2 of the temporary ROW area and 360.0 acres of the permanent ROW area that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat.</li> </ul>	<ul style="list-style-type: none"> <li>The Proposed Action would include approximately 359.3 acres of temporary ROW area and approximately 118.4 acres of permanent ROW area that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat.</li> <li>Approximately 15.6 acres of the temporary ROW area and approximately 6.0 acres of the permanent ROW area would occur within riparian habitat with the Proposed Action. The Proposed Action would cross the Perk, Joggles, and Perazzo slough areas that provide high-value habitat for some special status terrestrial wildlife species. The Proposed Action would traverse the main channel of Walker River adjacent to the Mason Valley WMA and the Joggles and Perk sloughs, where the sloughs are likely to maintain segments of at least a four-foot depth where mountain whitefish could occur.</li> </ul>	<ul style="list-style-type: none"> <li>Mason Valley WMA Transmission Alternative A would include substantially more temporary and permanent ROW areas (approximately 695.6 acres and approximately 170.1 acres, respectively) than the Proposed Action.</li> <li>Mason Valley WMA Transmission Alternative A would include approximately 12.8 acres of the temporary ROW area and approximately 2.0 acres of the permanent ROW areas within riparian habitat.</li> <li>Mason Valley WMA Transmission Alternative A would be located north of the Perk and Joggles sloughs and would have less potential impact to mountain whitefish compared to the Proposed Action.</li> <li>This alternative would act as less of a barrier to terrestrial wildlife coming to and from the WMA than the Proposed Action because only a small segment of Mason Valley WMA Transmission Alternative A (approximately 0.2 miles versus 3.4 miles) would be located within the Mason Valley WMA.</li> </ul>
<p><b>Bald and Golden Eagles:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect bald and golden eagles?</p>	<ul style="list-style-type: none"> <li>No impact.</li> </ul>	<ul style="list-style-type: none"> <li>No impact.</li> </ul>	<ul style="list-style-type: none"> <li>No impact.</li> </ul>	<ul style="list-style-type: none"> <li>No impact.</li> </ul>	<ul style="list-style-type: none"> <li>No impact.</li> </ul>

**Table 3-96. Comparison of Alternatives for the Scotty's Junction and Mason Valley WMA Transmission Line Route Groups  
(continued)**

Resource/Use Impact	Scotty's Junction Proposed Action	Scotty's Junction Transmission Alternative A	Scotty's Junction Transmission Alternative B	Mason Valley WMA Proposed Action	Mason Valley WMA Transmission Alternative A
<b>General Wildlife:</b> How would construction, O&M, and decommissioning of the GLWP affect general wildlife?	<ul style="list-style-type: none"> <li>The Proposed Action would result in impacts on general wildlife. These impacts would include habitat loss and fragmentation; collisions with or crushing by vehicles and equipment; increased avian predation; and temporary disturbance from noise, vehicles, and human presence.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action except Scotty's Junction Transmission Alternative A would result in the potential for greater impacts on general wildlife because this alternative would have more acres of temporary and permanent ROW areas compared to the Proposed Action and Scotty's Junction Transmission Alternative B.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action except Scotty's Junction Transmission Alternative B would result in the potential for greater impacts on general wildlife because this alternative would have more acres of temporary and permanent ROW areas compared to the Proposed Action and Scotty's Junction Transmission Alternative A.</li> </ul>	<ul style="list-style-type: none"> <li>The Proposed Action would result in impacts on general wildlife including habitat loss and fragmentation; collisions with or crushing by vehicles and equipment; increased avian predation; and temporary disturbance from noise, vehicles, and human presence.</li> <li>The Proposed Action would cross the Walker River within the Mason Valley WMA adjacent to an existing railroad river crossing and would include approximately 15.6 acres of temporary ROW area and approximately 6.0 acres of permanent ROW area within riparian habitat.</li> <li>The Proposed Action would also cross the Perk and Joggles sloughs, areas that provide high-quality habitat, and may result in habitat fragmentation.</li> <li>The Proposed Action would cross the Mason Valley WMA for approximately 3.4 miles and include approximately 12 structures.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action, with the following exceptions: <ul style="list-style-type: none"> <li>The Mason Valley WMA Transmission Alternative A would result in approximately 336.4 more acres of temporary ROW area and approximately 51.6 more acres of permanent ROW area compared to the Proposed Action.</li> <li>The Mason Valley WMA Transmission Alternative A would cross the Walker River north of the railroad river crossing just west of the Walker River Indian Reservation and would include approximately 12.8 acres of temporary ROW area and approximately 2.0 acres of permanent ROW area within riparian habitat.</li> <li>The Mason Valley WMA Transmission Alternative A would be located north of the Perk and Joggles sloughs and avoid any habitat fragmentation of these high-quality areas.</li> <li>Mason Valley WMA Transmission Alternative A would cross for approximately 0.2 miles and include 1 structure within the Mason Valley WMA.</li> </ul> </li> </ul>
<b>Cultural Resources:</b> Would historic properties be affected by the construction, O&M, and decommissioning of the GLWP?	<ul style="list-style-type: none"> <li>Within the Proposed Action Cultural Resources DAPE/VAPE, 14 cultural resource sites/historic properties would have adverse effects, 1 would have no adverse effects, and 64 would have no effects.</li> </ul>	<ul style="list-style-type: none"> <li>Within the Scotty's Junction Transmission Alternative A Cultural Resources DAPE/VAPE, 15 cultural resource sites/historic properties would have adverse effects, 0 would have no adverse effects, and 29 would have no effects.</li> </ul>	<ul style="list-style-type: none"> <li>Within the Scotty's Junction Transmission Alternative B Cultural Resources DAPE/VAPE, 12 cultural resource sites/historic properties would have adverse effects, 1 would have no adverse effects, and 33 would have no effects.</li> </ul>	<ul style="list-style-type: none"> <li>Within the Proposed Action Cultural Resources DAPE/VAPE, 4 cultural resource sites/historic properties would have adverse effects, 1 would have no adverse effects, and 3 would have no effects.</li> </ul>	<ul style="list-style-type: none"> <li>Within the Mason Valley WMA Transmission Alternative A Cultural Resources DAPE/VAPE, 28 cultural resource sites/historic properties would have adverse effects, 1 would have no adverse effects, and 12 would have no effects.</li> </ul>
<b>Native American Religious Concerns:</b> How would sacred sites or TCPs be affected by construction, O&M, and decommissioning of the GLWP?	<ul style="list-style-type: none"> <li>A modern prayer location was identified approximately 135 feet west of the Proposed Action. This prayer location would be avoided by direct effects. However, the Tribes have expressed concerns with obstructing views to the east of the prayer location. The Proposed Action would impact eastern views from the prayer location.</li> </ul>	<ul style="list-style-type: none"> <li>The modern prayer location would be approximately 1.4 miles east of Scotty's Junction Transmission Alternative A. This alternative would be west of the prayer location and would not obstruct eastern views - similar to Scotty's Junction Alternative B.</li> </ul>	<ul style="list-style-type: none"> <li>The modern prayer location would be approximately 170 feet east of Scotty's Junction Alternative B. This alternative would be west of the prayer location and would not obstruct eastern views - similar to Scotty's Junction Alternative A.</li> </ul>	<ul style="list-style-type: none"> <li>The Proposed Action may directly and/or indirectly impact some areas of Native American religious concern. Direct impacts would come from ground disturbance during construction, restricting access to sacred sites, and from visual changes due to new infrastructure. Ground-disturbing activities could have direct physical impacts on prayer sites such as displacement, damage, or destruction of features.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>
<b>Paleontological Resources:</b> How would construction, O&M, and decommissioning of the GLWP affect paleontological resources?	<ul style="list-style-type: none"> <li>The Proposed Action would cross approximately 729.5 acres of low (PFYC 2) and 732.6 acres of unknown (PFYC U) paleontological potential.</li> </ul>	<ul style="list-style-type: none"> <li>The Scotty's Junction Transmission Alternative A would cross approximately 787.9 acres of low (PFYC 2) paleontological potential only.</li> </ul>	<ul style="list-style-type: none"> <li>The Scotty's Junction Transmission Alternative B would cross approximately 720.2 acres of low (PFYC 2) paleontological potential only.</li> </ul>	<ul style="list-style-type: none"> <li>The Proposed Action would cross approximately 238.2 acres of unknown (PFYC U) paleontological potentials.</li> </ul>	<ul style="list-style-type: none"> <li>The Mason Valley WMA Transmission Alternative A would cross approximately 223.5 acres of low (PFYC 2) and approximately 118.0 acres of unknown (PFYC U) paleontological potential.</li> </ul>

**Table 3-96. Comparison of Alternatives for the Scotty's Junction and Mason Valley WMA Transmission Line Route Groups  
(continued)**

Resource/Use Impact	Scotty's Junction Proposed Action	Scotty's Junction Transmission Alternative A	Scotty's Junction Transmission Alternative B	Mason Valley WMA Proposed Action	Mason Valley WMA Transmission Alternative A
<p><b>Earth Resources:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect the earth resources of geology, soils, and minerals?</p>	<ul style="list-style-type: none"> <li>• Wind and water erosion and water runoff rates would be considered low for the Proposed Action.</li> <li>• There is no prime farmland if irrigated, irrigated and drained, or irrigated and reclaimed of excess salts and sodium, or farmland of statewide importance associated with the Proposed Action.</li> <li>• The Proposed Action would not cross any mining districts.</li> </ul>	<ul style="list-style-type: none"> <li>• Similar to the Proposed Action except Scotty's Junction Transmission Alternative A would have the greatest amount of highly susceptible soils for erosion and runoff (approximately 190.0 acres in the temporary ROW area and approximately 63.4 acres in the permanent ROW area) compared to the Proposed Action and Scotty's Junction Transmission Alternative B.</li> </ul>	<ul style="list-style-type: none"> <li>• The Scotty's Junction Transmission Alternative B would include similar acres of temporary and permanent ROW areas, and the same WEG ratings compared to the Proposed Action. Additionally, this alternative would not cross prime farmland or mining districts.</li> </ul>	<ul style="list-style-type: none"> <li>• Approximately 23 percent (82.9 acres) of the Proposed Action temporary ROW area and approximately 20 percent (23.6 acres) of the permanent ROW area would have soils that have high susceptibility to wind erosion. The Proposed Action permanent ROW area would have approximately 33 percent (39.4 acres) of soils considered to have low wind erosion.</li> <li>• The temporary and permanent ROW areas for the Proposed Action would have a range of water erosion and runoff rates from low to high. The high water erosion and runoff rates would be less than 2 percent for the Proposed Action.</li> <li>• Portions of the Proposed Action would also cross over lands planned for agriculture according to the 2020 Lyon County Master Plan for Mason Valley Land Use plan. These areas are not currently farmed, and the Lyon County 2020 Plan does not prohibit transmission lines from being constructed within agricultural lands. The construction of the Proposed Action would not result in loss of existing irrigated farmland and would not impact prime farmland soils currently being irrigated for agriculture use.</li> <li>• The Proposed Action would remove approximately 87.0 acres of farmland of statewide importance, approximately 3.2 acres of prime farmland if irrigated and drained, and approximately 18.7 acres of prime farmland if irrigated and reclaimed of excess salts and sodium long-term within this the permanent ROW area.</li> <li>• The Proposed Action would not cross any mining districts.</li> </ul>	<ul style="list-style-type: none"> <li>• The Mason Valley WMA Transmission Alternative A temporary and permanent ROW areas would be approximately 48 percent and 30 percent greater, respectively, than the Proposed Action.</li> <li>• Wind erosion susceptibility would be considered moderate for the Mason Valley WMA Transmission Alternative A for both the temporary and permanent ROW areas.</li> <li>• There would be low to moderate to high water erosion and runoff rates to wind erosion in the soils in the ROW areas for the Mason Valley WMA Transmission Alternative A. The percentage of high water erosion and runoff rates would be the same as the Proposed Action.</li> <li>• Portions of the Mason Valley WMA Transmission Alternative A would also cross over lands planned for agriculture but would not result in loss of existing irrigated farmland and would not impact prime farmland soils currently being irrigated for agriculture use.</li> <li>• The Mason Valley WMA Transmission Alternative A would remove approximately 98.9 acres of farmland of statewide importance and approximately 5.7 acres of prime farmland if irrigated and reclaimed of excess salts and sodium long-term within the permanent ROW area.</li> <li>• The Mason Valley WMA Transmission Alternative A would not cross any mining districts.</li> </ul>
<p><b>Air Quality, Climate Change, and Greenhouse Gas Emissions:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect air quality?</p>	<ul style="list-style-type: none"> <li>• The Proposed Action would result in negligible impacts to air quality from low-level particulate matter emissions from construction, O&amp;M, and decommissioning activities that may generate fugitive dust (particulates).</li> <li>• The construction of the Proposed Action would result in GHG emissions over the short-term. The majority of these emissions would occur during the construction and decommissioning phases. Minimal increases could potentially occur during O&amp;M.</li> </ul>	<ul style="list-style-type: none"> <li>• Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>• Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>• The Proposed Action would result in negligible impacts to air quality from low-level particulate matter emissions from construction, O&amp;M, and decommissioning activities that may generate fugitive dust (particulates).</li> <li>• The construction of the Proposed Action would result in GHG emissions over the short term. The majority of these emissions would occur during the construction and decommissioning phases. Minimal increases could potentially occur during O&amp;M.</li> </ul>	<ul style="list-style-type: none"> <li>• Same as the Proposed Action.</li> </ul>

**Table 3-96. Comparison of Alternatives for the Scotty's Junction and Mason Valley WMA Transmission Line Route Groups  
(continued)**

Resource/Use Impact	Scotty's Junction Proposed Action	Scotty's Junction Transmission Alternative A	Scotty's Junction Transmission Alternative B	Mason Valley WMA Proposed Action	Mason Valley WMA Transmission Alternative A
<b>Special Designation Areas:</b> How would construction, O&M, and decommissioning of the GLWP affect SDAs?	<ul style="list-style-type: none"> <li>The Proposed Action be greater than five miles from any SDA and would not impact any inventoried LWC units.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action except Scotty's Junction Transmission Alternative A would be within approximately 3.2 miles of the Grapevine Mountain WSA. There would be no change in primary use, use patterns, or wilderness characteristics at the Grapevine Mountain WSA as a result of implementation of Scotty's Junction Transmission Alternative A. At this distance, this alternative would not be visually discernible to the casual observer and would not attract attention.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Approximately 3.5 miles of the Proposed Action would require a permanent ROW area of approximately 82.2 acres and potentially have up to 12 structures within the Mason Valley WMA. The presence of the transmission line within Mason Valley WMA would conflict with management prescriptions to provide for the preservation, protection, management, and reclamation of wildlife and wildlife habitats. The Proposed Action would be collocated adjacent to the railroad to minimize fragmentation of the wildlife habitat within the Mason Valley WMA.</li> <li>The Proposed Action would not impact any inventoried LWC units.</li> </ul>	<ul style="list-style-type: none"> <li>Mason Valley WMA Transmission Alternative A would have one structure within the Mason Valley WMA prior to connecting with the Fort Churchill Substation. This alternative would require a permanent ROW area of approximately 5.2 acres within the WMA. The Mason Valley WMA Transmission Alternative A would conflict with Mason Valley WMA management prescriptions, but to a lesser extent than the Proposed Action.</li> <li>The Mason Valley WMA Transmission Alternative A would not impact any inventoried LWC units.</li> </ul>
<b>National Historic Trails and Trails Under Study for Congressional Designation:</b> How would the construction, O&M, and decommissioning of the GLWP affect NHTs (Old Spanish, California, and Pony Express) and feasible and suitable portions of the Central Overland Emigrant Route?	<ul style="list-style-type: none"> <li>No impact.</li> </ul>	<ul style="list-style-type: none"> <li>No impact.</li> </ul>	<ul style="list-style-type: none"> <li>No impact.</li> </ul>	<ul style="list-style-type: none"> <li>There would be no views of the Proposed Action from the FG of the California NHT Walker River segment. From the California NHT Walker River Segment, recreationists would have MG views of approximately 1.0 mile of the Proposed Action. The presence of the Proposed Action within the MG views from the California NHT Walker River segment would be visually discernible and may attract attention in the existing setting that contains elements and patterns of a rural farming community.</li> <li>The Proposed Action would not be incompatible or substantially interfere with the nature, purpose, and primary uses of the NHTs.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action, except recreationists on the California NHT Walker River segment would have MG views of approximately 1.6 miles of the Mason Valley WMA Transmission Alternative A.</li> </ul>
<b>Land Use, Realty, and Indian Trust Assets:</b> What would the physical disturbance or other impacts to operations of existing ROWs or land uses be with the construction, O&M, and decommissioning of the GLWP?	<ul style="list-style-type: none"> <li>The Proposed Action would avoid the Timbisha Shoshone Reservation and would not restrict development options on the Reservation or on private lands.</li> <li>Approximately 9 percent (1.4 miles) of the Proposed Action would cross sections containing mining claims.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action, with the following exceptions: <ul style="list-style-type: none"> <li>The Scotty's Junction Transmission Alternative A would cross less private lands than the Proposed Action and Scott's Junction Transmission Alternative B.</li> <li>Approximately 38 percent (6.2 miles) of Scotty's Junction Transmission Alternative A would cross sections containing mining claims.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Scotty's Junction Transmission Alternative B would cross a similar amount of private lands as the Proposed Action. This alternative would also cross the Timbisha Shoshone Reservation and result in approximately 118.0 acres of disturbance in the temporary ROW area and approximately 39.3 acres of the permanent ROW area on the Reservation. This Action Alternative would impact future development options because of the limitations on Tribal and private lands.</li> <li>Approximately 21 percent (3.0 miles) of Scotty's Junction Transmission Alternative B would cross sections containing mining claims.</li> </ul>	<ul style="list-style-type: none"> <li>The Proposed Action would disturb approximately 246.6 acres of the Mason Valley WMA in the temporary ROW area and approximately 82.2 acres of the Mason Valley WMA in the permanent ROW area. The permanent ROW area for the Proposed Action would cover less than one percent of the WMA. Collocation adjacent to the railroad would minimize disturbance to the existing uses of the WMA.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action, except the Mason Valley WMA Transmission Alternative A would disturb approximately 14.9 acres of the Mason Valley WMA within the temporary ROW area and approximately 5.2 acres of the WMA within the permanent ROW area.</li> </ul>
<b>Water Resources:</b> How would the construction, O&M, and decommissioning of the GLWP affect water resources?	<ul style="list-style-type: none"> <li>The Proposed Action would include approximately 154 surface water crossings in the temporary ROW area and 64 surface water crossings in the permanent ROW area. There would be approximately 17.6 acres of the temporary ROW area and approximately 5.4 acres of the permanent ROW area in high flood risk areas.</li> </ul>	<ul style="list-style-type: none"> <li>Scotty's Junction Transmission Alternative A would include approximately 212 surface water crossings in the temporary ROW area and approximately 81 surface water crossings in the permanent ROW area. There would be approximately 11.6 acres of the temporary ROW area and approximately 3.7 acres of the permanent ROW area in high flood risk areas.</li> </ul>	<ul style="list-style-type: none"> <li>Scotty's Junction Transmission Alternative B would include 185 surface water crossings in the temporary ROW area and 68 surface water crossings in the permanent ROW area. There would be approximately 13.0 acres of the temporary ROW area and approximately 3.9 acres of the permanent ROW area in high flood risk areas.</li> </ul>	<ul style="list-style-type: none"> <li>The Proposed Action would include approximately 17 surface water crossings in the temporary ROW area and approximately 8 surface water crossings in the permanent ROW area. There would be approximately 207.9 acres of the temporary ROW area and approximately 69.3 acres of the permanent ROW area in high flood risk areas.</li> </ul>	<ul style="list-style-type: none"> <li>The Mason Valley WMA Transmission Alternative A would include approximately 13 surface water crossings in the temporary ROW area and approximately 6 surface water crossings in the permanent ROW area. There would be approximately 94.1 acres of the temporary ROW area and approximately 15.8 acres of the permanent ROW area in high flood risk areas.</li> </ul>

**Table 3-96. Comparison of Alternatives for the Scotty's Junction and Mason Valley WMA Transmission Line Route Groups  
(continued)**

Resource/Use Impact	Scotty's Junction Proposed Action	Scotty's Junction Transmission Alternative A	Scotty's Junction Transmission Alternative B	Mason Valley WMA Proposed Action	Mason Valley WMA Transmission Alternative A
<p><b>Visual Resources:</b> How would the construction, O&amp;M, and decommissioning of the GLWP affect visual resources?</p>	<ul style="list-style-type: none"> <li>The Proposed Action permanent ROW area would cross approximately 366.8 acres of Scenic Quality Class C landscapes. The scenic quality within the FG of the transmission line would be altered with the introduction of the guyed lattice structures through the Sarcobatus Flat (BMDO-115) VAU.</li> <li>Motorists traveling along the roadways would have views of the Proposed Action for a total of approximately 34 minutes on US 95 and 8 minutes on SR 267. The FG views from US 95 off the Proposed Action would be a change from the existing setting.</li> <li>The Proposed Action would be visible from the entire Timbisha Shoshone community. The portions of the Proposed Action that would be visible within the FG of the Timbisha Shoshone Reservation SVP would attract attention, be visually prominent, and begin to dominate the visual setting.</li> <li>The Proposed Action would be in conformance with the VRM IV designated landscape.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action with the following exceptions: <ul style="list-style-type: none"> <li>The Scotty's Junction Transmission Alternative A permanent ROW area would cross approximately 393.7 acres of Scenic Quality Class C landscapes.</li> <li>Motorists traveling along SR 267 would have FG views of Scotty's Junction Transmission Alternative A for approximately 12 minutes.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action with the following exception: <ul style="list-style-type: none"> <li>Motorists traveling along SR 267 would have FG views of Scotty's Junction Transmission Alternative B for approximately five minutes.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>The Proposed Action permanent ROW area would cross approximately 118.4 acres of Scenic Quality Class C landscapes. The scenic quality within the FG of the transmission line would be notably altered with the introduction of the guyed lattice structures through the Mason Valley (CCDO-037) and Parker Butte (CCDO-041) VAUs.</li> <li>Motorists traveling along the roadways would have views of Proposed Action for a total of approximately 10 minutes on US 95A. The Proposed Action's effect on the FG views from US 95A would be a change from the existing setting.</li> <li>The Proposed Action would be visible from approximately 86 percent of the Mason Valley WMA within the visual resource analysis area. The Proposed Action would attract attention and be visually prominent when viewed from the immediate FG of the WMA.</li> <li>Under the Proposed Action, the California NHT would be the only NHT SVP that would have views of the alternative. Recreationists walking along the California NHT would have views of the Proposed Action for a total of approximately 2 hours. The presence of the Proposed Action would be visually discernible and may attract attention in the existing setting from the California NHT.</li> <li>The Proposed Action would be visible from approximately one percent of the Walker River Indian Reservation SVP. The Proposed Action that would be visible within the FG of this SVP and would begin to attract attention.</li> <li>The BLM-administered lands associated with the Proposed Action are unclassified for VRM and, as such, conformance determinations with VRM objectives are not applicable.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action with the following exceptions: <ul style="list-style-type: none"> <li>The Mason Valley WMA Transmission Alternative A permanent ROW area would cross approximately 170.1 acres of Scenic Quality Class C landscapes.</li> </ul> </li> </ul>
<p><b>Socioeconomic Resources and Environmental Justice:</b> What impact would the construction, O&amp;M, and decommissioning of the GLWP have on socioeconomic resources and EJ populations?</p>	<ul style="list-style-type: none"> <li>The Proposed Action would include short-term economic impacts from the increased demand for public services associated with the construction workforce. Additionally, there would be long-term economic impacts associated with the generation of tax revenues. The Proposed Action would have no disproportionate impacts on EJ populations.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action with the exception that Scotty's Junction Transmission Alternative B would have a greater economic impact to the Timbisha Shoshone Tribe due to a lease income for the transmission line ROW.</li> </ul>	<ul style="list-style-type: none"> <li>The Proposed Action would include short-term economic impacts from the increased demand for public services associated with the construction workforce. Additionally, there would be long-term economic impacts associated with the generation of tax revenues. The Proposed Action would have no disproportionate impacts on EJ populations.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>
<p><b>Public Health and Safety, Noise, Fire Management, and Waste:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect public health and safety, noise, fire management, and waste?</p>	<ul style="list-style-type: none"> <li>The Proposed Action would have negligible impacts on public health and safety, noise, and hazardous waste materials and no impact on fire management.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>The Proposed Action would have negligible impacts on public health and safety, noise, and hazardous waste materials and no impact on fire management.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>

**Table 3-96. Comparison of Alternatives for the Scotty's Junction and Mason Valley WMA Transmission Line Route Groups  
(continued)**

Resource/Use Impact	Scotty's Junction Proposed Action	Scotty's Junction Transmission Alternative A	Scotty's Junction Transmission Alternative B	Mason Valley WMA Proposed Action	Mason Valley WMA Transmission Alternative A
BLM RMP Conformance	<ul style="list-style-type: none"> <li>• VRM: Conforms</li> <li>• WWEC:               <ul style="list-style-type: none"> <li>○ Modify WWEC 18-224 to align with the Proposed Action transmission route between MP 101.7 to MP 107.6, MP 119.4 to MP 125.5, MP 126.5 to MP 127.0, MP 129.0 to MP 133.9, MP 136.4 to MP 145.1, and MP 147.3 to MP 148.4.</li> <li>○ De-designate portions of WWEC 18-224 where the Proposed Action would be outside of the designated WWEC.</li> <li>○ Designate new WWEC 18-224 following the Proposed Action route.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• VRM: Conforms</li> <li>• WWEC:               <ul style="list-style-type: none"> <li>○ Modify WWEC 18-224 to align with the Scotty's Junction Transmission Alternative A between MP 170.0 to MP 180.8.</li> <li>○ De-designate portions of WWEC 18-224 where the Scotty's Junction Transmission Alternative A would be outside of the designated WWEC.</li> <li>○ Designate new WWEC 18-224 following the Scotty's Junction Transmission Alternative A.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• VRM: Conforms</li> <li>• WWEC: Conforms</li> </ul>	<ul style="list-style-type: none"> <li>• VRM: Conforms</li> <li>• WWEC: Conforms</li> </ul>	<ul style="list-style-type: none"> <li>• VRM: Conforms</li> <li>• WWEC: Conforms</li> </ul>

*Table Acronym(s):* BIA – Bureau of Indian Affairs; BLM – Bureau of Land Management; BMDO – Battle Mountain District Office; CCDO – Carson City District Office; DAPE – Direct Area of Potential Effects; DOD – Department of Defense; EJ – Environmental Justice; FG – Foreground; GHG – Greenhouse gas; GLWP – Greenlink West Transmission Project; LWC – Lands with Wilderness Characteristics; MG – Middleground; MP – Milepost; NDSL – Nevada Division of State Lands; NHT – National Historic Trail; O&M – Operations and Maintenance; PFYC – Potential Fossil Yield Classification; RMP – Resource Management Plan; ROW – Right-of-way; SDA – Special Designation Area; SR – State Route; SVP – Sensitive Viewing Platform; TCP – Traditional Cultural Property; US – United States; VAPE – Visual Area of Potential Effects; VAU – Visual Assessment Unit; VRM – Visual Resource Management; WEG – Wind Erodibility Group; WMA – Wildlife Management Area; WSA – Wilderness Study Area; WWEC – West-wide Energy Corridor.

*Tables Notes:* Due to rounding, the total mileage/acreage identified by ownership/management agency may not sum precisely.



**Table 3-98. Comparison of Alternatives for the Carson River Transmission Line Route Group**

Resource/Use Impact	Carson River Proposed Action	Carson River Transmission Alternative A	Carson River Transmission Alternative C
<b>Land Ownership</b> (approximate centerline miles)	<ul style="list-style-type: none"> <li>• Total: 71.8                             <ul style="list-style-type: none"> <li>○ BLM: 42.9</li> <li>○ Private: 28.8</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Total: 75.8                             <ul style="list-style-type: none"> <li>○ BLM: 44.5</li> <li>○ Private: 31.3</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Total: 82.6                             <ul style="list-style-type: none"> <li>○ BLM: 61.4</li> <li>○ Private: 21.2</li> </ul> </li> </ul>
<b>Land Ownership</b> (approximate temporary ROW area acres)	<ul style="list-style-type: none"> <li>• Total: 6,440.8                             <ul style="list-style-type: none"> <li>○ BLM: 4,118.4</li> <li>○ Private: 2,322.4</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Total: 5,317.6                             <ul style="list-style-type: none"> <li>○ BLM: 3,224.5</li> <li>○ Private: 2,093.1</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Total: 6,297.5                             <ul style="list-style-type: none"> <li>○ BLM: 5,120.1</li> <li>○ NDSL: 5.8</li> <li>○ Private: 1,171.6</li> </ul> </li> </ul>
<b>Land Ownership</b> (approximate permanent ROW area acres)	<ul style="list-style-type: none"> <li>• Total: 1,740.0                             <ul style="list-style-type: none"> <li>○ BLM: 1,043.1</li> <li>○ Private: 696.9</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Total: 1,825.9                             <ul style="list-style-type: none"> <li>○ BLM: 1,070.5</li> <li>○ Private: 755.3</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Total: 1,935.7                             <ul style="list-style-type: none"> <li>○ BLM: 1,465.4</li> <li>○ Private: 470.3</li> </ul> </li> </ul>
<b>Federally Listed Species:</b> How would construction, O&M, and decommissioning of the GLWP affect federally listed species and their habitat?	<ul style="list-style-type: none"> <li>• No impact to Mount Charleston blue butterfly, Mojave desert tortoise, Amargosa niterwort, Ash Meadows gumplant, Ash Meadows blazingstar, Ash Meadows ivesia, Ash Meadows sunray, Ash Meadows milkvetch, or spring-loving centaury.</li> <li>• The Proposed Action would include approximately 3,545.7 acres of the temporary and approximately 999.0 acres of the permanent ROW areas within the Pine Nut PMU. The Proposed Action would not occur within Bi-State sage-grouse habitat or proposed critical habitat.</li> <li>• The Carson River crossings associated with the Proposed Action would contain suitable habitat for the Lahontan cutthroat trout and northwestern pond turtle. Neither species is known to reside within the section of the Carson River where the Proposed Action would cross. The Proposed Action would include approximately 51.2 acres of the temporary and approximately 11.9 acres of the permanent ROW areas in riparian habitat. Impacts associated with habitat degradation from vegetation removal, soil movement, and runoff would be negligible for the Lahontan cutthroat trout and the northwestern pond turtle under the Proposed Action.</li> <li>• The Proposed Action would not occur within suitable breeding habitat for the southwestern willow flycatcher and Yuma Ridgway's rail. The Carson River contains marginal suitable breeding habitat for the yellow-billed cuckoo. The potential for breeding habitat would be low because riparian vegetation along the Carson River at the crossing of the Proposed Action is sparse and limited populations of the species occur in the region. These species could migrate or disperse over the Proposed Action, but impacts would be negligible.</li> </ul>	<ul style="list-style-type: none"> <li>• Similar to the Proposed Action, with the following exceptions:                             <ul style="list-style-type: none"> <li>○ Carson River Transmission Alternative A would include approximately 2,952.7 acres of the temporary ROW area and approximately 1,031.6 acres of the permanent ROW area within the Pine Nut PMU.</li> <li>○ This alternative would collocate approximately 15.1 miles of the three 345-kV transmission lines together within the Pine Nut PMU with an existing transmission line. Impacts in areas where Carson River Transmission Alternatives A and C would be collocated with an existing transmission line may be less compared to the Proposed Action because similar impacts are already present along the existing transmission infrastructure.</li> <li>○ Carson River Transmission Alternative A would include approximately 33.9 acres of the temporary and approximately 11.0 acres of the permanent ROW areas in riparian habitat.</li> <li>○ Carson River Transmission Alternative A would consolidate the number of transmission lines crossings of the Carson River but not result in any notable change in impacts on suitable breeding habitat for the yellow-billed cuckoo.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Same as the Proposed Action, with the following exceptions:                             <ul style="list-style-type: none"> <li>○ Carson River Transmission Alternative C would include approximately 3,152.8 acres of the temporary ROW area and approximately 892.9 acres of the permanent ROW area within the Pine Nut PMU. This alternative would include approximately 6.8 acres of the temporary ROW area and a pull site within Bi-State sage-grouse proposed critical habitat.</li> <li>○ This alternative would collocate approximately 15.5 miles of the three 345-kV transmission lines together within the Pine Nut PMU with an existing transmission line. Impacts in areas where the Carson River Transmission Alternatives C and A would be collocated with an existing transmission line may be less compared to the Proposed Action because similar impacts are already present along the existing transmission infrastructure.</li> <li>○ Carson River Transmission Alternative C would include approximately 28.1 acres of the temporary and approximately 4.9 acres of the permanent ROW areas in riparian habitat.</li> </ul> </li> </ul>
<b>General Vegetation:</b> How would construction, O&M, and decommissioning of the GLWP affect native vegetation, invasive plant species and noxious weeds, and forest resources?	<ul style="list-style-type: none"> <li>• The amount of potential temporary and permanent disturbance to native vegetation communities from the Proposed Action would be minimal compared to amount of these populations in the vegetation analysis area.</li> <li>• The Proposed Action would have a negligible impact on the spread and/or introduction of invasive plant species and noxious weeds because of the implementation of measures to minimize potential effects.</li> <li>• The Proposed Action would result in approximately 75.4 acres of temporary ROW area and approximately 20.5 acres of permanent ROW area within woodland areas, resulting in negligible impacts to forest resources, and would not result in impacts or modifications to the existing management of forest resources by the federal ROW agencies.</li> </ul>	<ul style="list-style-type: none"> <li>• Similar to the Proposed Action, with the following except Carson River Transmission Alternative A would result in approximately 46.6 acres of temporary and approximately 14.9 acres of permanent ROW areas within woodland areas, which would be less than the Proposed Action and Carson River Transmission Alternative C.</li> </ul>	<ul style="list-style-type: none"> <li>• Similar to the Proposed Action, with the following except The Carson River Transmission Alternative C would result in approximately 57.4 acres of temporary and approximately 18.2 acres of permanent ROW areas within woodland areas, which would be less than the Proposed Action and more than Carson River Transmission Alternative A.</li> </ul>

**Table 3-97. Comparison of Alternatives for the Carson River Transmission Line Route Group  
(continued)**

Resource/Use Impact	Carson River Proposed Action	Carson River Transmission Alternative A	Carson River Transmission Alternative C
<p><b>Special Status Species:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect habitat, movement, and behavior of special status species and migratory birds?</p>	<ul style="list-style-type: none"> <li>Special status plants, terrestrial wildlife, aquatic species, and bird and bat species could occur within the Proposed Action temporary and permanent ROW areas. The Proposed Action would include approximately 6,440.8 acres of temporary ROW area and approximately 1,740.0 acres of permanent ROW area that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat.</li> <li>The Proposed Action would include approximately 82.4 acres of the temporary ROW area and approximately 25.0 acres of the permanent ROW area within suitable habitat for Churchill Narrows buckwheat. Additionally, a 2011 survey identified approximately 4.0 acres of occupied habitat that would occur within the temporary ROW area for the Proposed Action. The Proposed Action would occur within suitable habitat for Tiehm’s peppergrass and Nevada suncup and the Proposed Action would impact a known population of Tiehm’s peppergrass.</li> <li>The Proposed Action would include approximately 88.8 acres of temporary and approximately 25.3 acres of permanent ROW areas within riparian vegetation, marsh, and playa habitat.</li> <li>The Proposed Action would include approximately 14.5 acres of cliff and canyon bat-roosting habitat within its temporary ROW area and approximately 2.1 acres in its permanent ROW area.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action with the following exceptions: <ul style="list-style-type: none"> <li>Carson River Transmission Alternative A would include approximately 5,317.6 acres of the temporary ROW area and approximately 1,825.9 acres of the permanent ROW area that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat, which would be less than the Proposed Action and Carson River Transmission Alternative C.</li> <li>Carson River Transmission Alternative A would include approximately 1.4 acres of temporary ROW and approximately 0.7 acres of permanent ROW areas within suitable habitat for the Churchill Narrows buckwheat. No Churchill Narrows buckwheat individuals were identified during surveys within the temporary ROW area of the Carson River Transmission Alternative A. Additionally, a 2011 survey did not identify occupied habitat within the temporary ROW area for this alternative. Carson River Transmission Alternative A would occur within suitable habitat for Tiehm’s peppergrass and Nevada suncup. No known populations of Tiehm’s peppergrass occur in the vicinity of Carson River Transmission Alternatives A and C.</li> <li>Carson River Transmission Alternative A would include approximately 57.2 acres of temporary ROW area and approximately 19.3 acres of permanent ROW area within riparian vegetation, marsh, and playa habitat. This alternative would require a similar amount of disturbance to aquatic habitat within its temporary and permanent ROW areas as Carson River Transmission Alternative C and the Proposed Action, but in a different location.</li> <li>Carson River Transmission Alternative A would consolidate the location of the 345-kV transmission lines crossings of the Carson River. Consolidating the transmission line crossings over the Carson River would not result in any notable change in the acres of disturbance to habitat. Consolidating the crossings would, however, result in less impacts to individual species by reducing exposure to disturbances such as human presence and noise and predation opportunities on the local terrestrial prey compared to Carson River Transmission Alternative C and the Proposed Action.</li> <li>Carson River Transmission Alternative A would include approximately 11.3 acres of cliff and canyon bat-roosting habitat within its temporary ROW area and approximately 2.0 acres in its permanent ROW area, similar to Carson River Transmission Alternative C.</li> <li>This alternative would also include approximately 57.2 acres of riparian vegetation, marsh, and playa habitat within its temporary ROW and approximately 19.3 acres within its permanent ROW areas, similar to Carson River Transmission Alternative C and less than the Proposed Action.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action with the following exceptions: <ul style="list-style-type: none"> <li>Carson River Transmission Alternative C would include approximately 6,297.5 acres of the temporary ROW area and approximately 1,935.7 acres of the permanent ROW area that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat, which would be less than the Proposed Action temporary ROW area and more than the Carson River Transmission Alternative A ROW areas and the Proposed Action permanent ROW area.</li> <li>Carson River Transmission Alternative C would include approximately 13.3 acres of temporary ROW area and approximately 1.8 acres of permanent ROW area within suitable habitat for Churchill Narrows buckwheat. No Churchill Narrows buckwheat individuals were identified during surveys within the temporary ROW area of the Carson River Transmission Alternative C. Additionally, a 2011 survey did not identify occupied habitat within the temporary ROW area for this alternative. No known populations of Tiehm’s peppergrass occur in the vicinity of Carson River Transmission Alternatives C and A.</li> <li>Carson River Transmission Alternative C would include approximately 62.4 acres of temporary and approximately 20.0 acres of permanent ROW areas within riparian vegetation, marsh, and playa habitat.</li> <li>This alternative would include approximately 15.1 acres of cliff and canyon bat-roosting habitat within its temporary ROW area and approximately 4.8 acres in its permanent ROW area, similar to Carson River Transmission Alternative A.</li> <li>Carson River Transmission Line Alternative C would also include approximately 62.4 acres of temporary ROW and approximately 20.0 acres of permanent ROW within riparian vegetation, marsh, and playa habitat similar to Carson River Transmission Alternative A and less than the Proposed Action.</li> </ul> </li> </ul>
<p><b>Bald and Golden Eagles:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect bald and golden eagles?</p>	<ul style="list-style-type: none"> <li>A total of 23 nests with the potential to support golden eagles were identified within the Proposed Action survey area. A total of one potentially suitable nest was found during the survey to be within the temporary ROW area for the Proposed Action and none were found in the permanent ROW area.</li> <li>Impacts to golden eagles associated with noise, visual disturbance, human presence, electrocution, and injury from transmission wire collision are anticipated to be negligible. The Proposed Action would result in slight changes to golden eagle habitat and is not anticipated to result in a decrease in productivity, nest abandonment, or eagle survival.</li> <li>There would be a very small loss of foraging habitat for bald eagles because the Proposed Action temporary and permanent ROW areas do not contain this species’ preferred foraging habitat.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action, except a total of 13 nests with the potential to support golden eagles were identified within the Carson River Transmission Alternative A survey area and none were found within the temporary or permanent ROW areas.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action, except a total of 25 nests with the potential to support golden eagles were identified within the Carson River Transmission Alternative C survey area and none were found within the temporary or permanent ROW areas.</li> </ul>

**Table 3-97. Comparison of Alternatives for the Carson River Transmission Line Route Group  
(continued)**

Resource/Use Impact	Carson River Proposed Action	Carson River Transmission Alternative A	Carson River Transmission Alternative C
<p><b>General Wildlife:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect general wildlife?</p>	<ul style="list-style-type: none"> <li>The Proposed Action would result in impacts on general wildlife. These impacts would include habitat loss and fragmentation; collisions with or crushing by vehicles and equipment; increased avian predation; and temporary disturbance from noise, vehicles, and human presence. The Proposed Action would result in approximately 6,440.8 acres of temporary ROW area and approximately 1,740.0 acres of permanent ROW area.</li> <li>The Carson River, in the vicinity of the Proposed Action, provides high-value riparian and aquatic habitat for general wildlife. The Proposed Action would include approximately 51.2 acres of riparian habitat within its temporary ROW area and approximately 11.9 acres within its permanent ROW area.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action with the following exceptions: <ul style="list-style-type: none"> <li>Carson River Transmission Alternative A would result in approximately 1,132.2 less acres of temporary ROW area and approximately 85.9 more acres of permanent ROW area compared to the Proposed Action.</li> <li>Carson River Transmission Alternative A would include approximately 33.9 acres of riparian habitat within its temporary ROW area and approximately 11.0 acres within its permanent ROW area, less than the Proposed Action and more than Carson River Transmission Alternative C.</li> <li>Compared to the Proposed Action, Carson River Transmission Alternative A would shift the 345-kV Fort Churchill to Comstock Meadows #2 transmission line to cross the Carson River adjacent to the 345-kV Fort Churchill to Comstock Meadows #1 transmission line, which would effectively consolidate the three crossings across the Carson River to one corridor. The Carson River Transmission Alternative A would result in less impacts to general wildlife habitat fragmentation by placing all three transmission line crossings of the Carson River within one mile of each other.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action with the following exceptions: <ul style="list-style-type: none"> <li>Carson River Transmission Alternative C would result in approximately 143.3 less acres of temporary ROW area and approximately 195.7 more acres of permanent ROW area compared to the Proposed Action.</li> <li>Carson River Transmission Alternative C would include approximately 28.1 acres of riparian habitat within its temporary ROW area and approximately 4.9 acres within its permanent ROW area, less than the Proposed Action and more than Carson River Transmission Alternative A.</li> <li>Carson River Transmission Alternative C would shift the Churchill to Comstock Meadows #2 transmission line approximately 1.4 miles downstream from the location of the Churchill to Comstock Meadows #2 transmission line identified under the Proposed Action. The greater separation of the river crossing by the three 345-kV transmission lines in both Carson River Transmission Alternative C and the Proposed Action would expand the predation opportunities on the local terrestrial prey populations and further fragment habitat for general wildlife. The Carson River Transmission Alternative C would result in less impacts to wetland habitats than Carson River Transmission Alternative A or the Proposed Action.</li> </ul> </li> </ul>
<p><b>Cultural Resources:</b> Would historic properties be affected by the construction, O&amp;M, and decommissioning of the GLWP?</p>	<ul style="list-style-type: none"> <li>Within Proposed Action Cultural Resources DAPE/VAPE, 45 cultural resource sites/historic properties would have adverse effects, 15 would have no adverse effects, and 105 would have no effects.</li> </ul>	<ul style="list-style-type: none"> <li>Within the Carson River Transmission Alternative A Cultural Resources DAPE/VAPE, 44 cultural resource sites/historic properties would have adverse effects, 15 would have no adverse effects, and 98 would have no effects.</li> </ul>	<ul style="list-style-type: none"> <li>Within the Carson River Transmission Alternative C Cultural Resources DAPE/VAPE, 57 cultural resource sites/historic properties would have adverse effects, 8 would have no adverse effects, and 131 would have no effects.</li> </ul>
<p><b>Native American Religious Concerns:</b> How would sacred sites or TCPs be affected by construction, O&amp;M, and decommissioning of the GLWP?</p>	<ul style="list-style-type: none"> <li>The Proposed Action may directly and/or indirectly impact some areas of Native American religious concern. Direct impacts would come from ground disturbance during construction, restricting access to sacred sites, and from visual changes due to new infrastructure. Ground-disturbing activities could have direct physical impacts on prayer sites such as displacement, damage, or destruction of features.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>
<p><b>Paleontological Resources:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect paleontological resources?</p>	<ul style="list-style-type: none"> <li>The Proposed Action would cross approximately 140.1 acres of very low (PFYC 1), approximately 2,347.9 acres of low (PFYC 2), and 9 approximately 22.7 acres of unknown (PFYC U) paleontological potential.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action, except Carson River Transmission Alternative A would cross approximately 140.1 acres of PFYC 1 units, approximately 2,339.1 acres of low (PFYC 2), and approximately 1,033.1 acres of unknown (PFYC U) paleontological potential.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action, except Carson River Transmission Alternative C would cross approximately 297.1 acres of very low (PFYC 1), approximately 1,841.3 acres of low (PFYC 2), and approximately 1,041.9 acres of unknown (PFYC U) paleontological potential.</li> </ul>
<p><b>Earth Resources:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect the earth resources of geology, soils, and minerals?</p>	<ul style="list-style-type: none"> <li>Less than one percent of the temporary ROW area for the Proposed Action would have soils with a high susceptibility to water erosion and runoff. Soils with low susceptibility to erosion and runoff for the Proposed Action would include approximately 63 percent of the temporary ROW area and approximately 53 percent of the permanent ROW area.</li> <li>The Proposed Action temporary and permanent ROW areas would be considered to have low wind erosion susceptibility.</li> <li>The Proposed Action would remove approximately 340.4 acres of farmland of statewide importance in the permanent ROW area and approximately 140.7 acres of prime farmland if irrigated and reclaimed of excess salts and sodium long-term.</li> <li>The temporary ROW areas of the Proposed Action would cross two mining districts, Como and Red Mountain (Lyon Storey). The Proposed Action temporary ROW area would affect less than one percent of these two mining districts. The permanent ROW area of the Proposed Action would only cross the Red Mountain (Lyon Storey) mining district and would affect less than one percent of this mining district.</li> </ul>	<ul style="list-style-type: none"> <li>Although the Carson River Transmission Alternative A temporary ROW area would be smaller, the proportion that would include soils with a high susceptibility to water erosion and runoff would be the same as the Proposed Action and Carson River Transmission Alternative C (less than one percent). Similarly, the proportion of the temporary ROW area that would include soils with low susceptibility for erosion and runoff would be the same as the Proposed Action (approximately 63 percent) and similar for the permanent ROW area (approximately 59 percent).</li> <li>Carson River Transmission Alternative A wind erosion ratings for the temporary and permanent ROW areas would be similar to the Proposed Action and the Carson River Transmission Alternative C.</li> <li>Carson River Transmission Alternative A and the Proposed Action permanent ROW areas would remove similar amounts of farmland of statewide importance (approximately 363.7 acres versus 340.4 acres) and prime farmland if irrigated, drained, and reclaimed of excess salts and sodium long-term (approximately 139.2 acres versus 140.7 acres).</li> <li>Carson River Transmission Alternative A would cross the same two mining districts, Como and Red Mountain (Lyon Storey) and have the same impacts as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Carson River Transmission Alternative C temporary ROW areas would have the same proportion that would include soils that have a high susceptibility to water erosion and runoff as the Proposed Action and Carson River Transmission Alternative A.</li> <li>Carson River Transmission Alternative C would include a greater proportion of the temporary and permanent ROW areas with soils with low susceptibility for erosion and runoff (approximately 76 percent and 72 percent, respectively) than the Proposed Action and Carson River Transmission Alternative A.</li> <li>The Carson River Transmission Alternative C WEG ratings for the temporary and permanent ROW areas would be the same as the Proposed Action and similar to the Carson River Transmission Alternative A.</li> <li>The Carson River Transmission Alternative C permanent ROW area would remove a greater amount of farmland of statewide importance (approximately 573.1 acres) than the Proposed Action and the Carson River Transmission Alternative A. However, this alternative would remove less prime farmland if irrigated, drained, and reclaimed of excess salts and sodium long-term (approximately 32.6 acres) than the Proposed Action and Carson River Transmission Alternative A.</li> <li>Carson River Transmission Alternative C would cross the same two mining districts, Como and Red Mountain (Lyon Storey) as Carson River Transmission Alternative A and the Proposed Action. The impacts to Red Mountain (Lyon Storey) mining district would be the same as the Proposed Action and Carson River Transmission Alternative A. Carson River Transmission Alternative C would include more acres of the temporary ROW area and approximately 38.6 acres of the permanent ROW area in the Como Mining District.</li> </ul>

**Table 3-97. Comparison of Alternatives for the Carson River Transmission Line Route Group  
(continued)**

Resource/Use Impact	Carson River Proposed Action	Carson River Transmission Alternative A	Carson River Transmission Alternative C
<p><b>Air Quality, Climate Change, and Greenhouse Gas Emissions:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect air quality?</p>	<ul style="list-style-type: none"> <li>The Proposed Action would result in negligible impacts to air quality from low-level particulate matter emissions from construction, O&amp;M, and decommissioning activities that may generate fugitive dust (particulates).</li> <li>The construction of the Proposed Action would result in GHG emissions over the short-term. The majority of these emissions would occur during the construction and decommissioning phases. Minimal increases could potentially occur during O&amp;M.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>
<p><b>Special Designation Areas:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect SDAs?</p>	<ul style="list-style-type: none"> <li>The Proposed Action would be approximately 1.0 mile (FG) from the Fort Churchill State Historic Park’s western boundary and approximately 3.4 miles (MG) from the Visitor Center. The magnitude of the changes in views from within the Fort Churchill State Historic Park of the Proposed Action would be dependent on distance from the park visitor to the transmission lines and the visibility conditions (time of day, season, and presence or absence of vegetation and terrain backdrop). There would be no change in primary use, use patterns, or functions at Fort Churchill State Historic Park.</li> <li>The Proposed Action would impact two inventoried LWC units (NV-030-210A and NV-030-211A). The Proposed Action would impact approximately 11,170 acres of the two inventoried LWC units it would cross. This would result in the elimination of both of the inventoried LWC units from the BLM CCDO’s LWC inventory because it would reduce the two units below the 5,000-acre threshold for a LWC unit</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action with the following exceptions: <ul style="list-style-type: none"> <li>The Carson River Transmission Alternative A 345-kV Fort Churchill to Comstock Meadows #2 transmission line would be approximately 3.4 miles (MG) from the western boundary of Fort Churchill State Historic Park and would not be visible from the Visitor Center.</li> <li>The Carson River Transmission Alternative A would not impact any inventoried LWC units.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action with the following except Carson River Transmission Alternative C would impact four inventoried LWC units (NV-030-210A, NV-030-517A, NV-030-521, and NV-030-522). Carson River Transmission Alternative C would impact approximately 9,515.7 acres of the inventoried LWC units that it would cross. It would also result in the loss of the inventoried LWC unit NV-030-210A because it would reduce the unit below the 5,000-acre threshold for a LWC unit.</li> </ul>
<p><b>National Historic Trails and Trails Under Study for Congressional Designation:</b> How would the construction, O&amp;M, and decommissioning of the GLWP affect NHTs (Old Spanish, California, and Pony Express) and feasible and suitable portions of the Central Overland Emigrant Route?</p>	<ul style="list-style-type: none"> <li>The Proposed Action would add three 345-kV steel H-frame transmission lines to the landscape where one wood H-frame transmission line currently exists. The portions of the Proposed Action visible from the California NHT Carson Route and the Simpson Route #35E segments would not attract attention within the visual setting because of the existing development associated with Dayton, Stagecoach, and Silver Springs.</li> <li>Where the Proposed Action would cross the Carson River segment of the California NHT, the Pony Express NHT, and the Simpson Route #35E, effects would be most pronounced for approximately 5.5 miles where two of the 345-kV transmission lines would be generally parallel to and cross over the Carson River. The three 345-kV transmission lines would attract attention when they would pass immediately overhead.</li> <li>The southern portion of the Walker River – Sonora Route segment occurs in an open, flat basin with views of multiple existing transmission lines in all directions. The three Proposed Action 345-kV transmission lines would be seen in context with an existing wood pole H-frame transmission line. Where the Proposed Action would be generally parallel to and within the immediate FG of the NHT, it would noticeably alter the scenic, recreational, and historic experience for approximately 4.9 miles along the trail.</li> <li>The Proposed Action would permanently change and therefore would be incompatible with the desired NHT settings for the portions of the three US 50 Carson Routes, the Carson River Route, the Walker River – Sonora Route, and the Pony Express NHT within the immediate FG of the Proposed Action in the NHT analysis area. The Proposed Action would be incompatible with but not substantially interfere with the nature, purpose, and primary uses of a portion of the California, Pony Express, and Old Spanish NHTs.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action with the following exceptions: <ul style="list-style-type: none"> <li>Recreationists’ views along NHTs within the FG of Carson River Transmission Alternative A would be consolidated due to the collocated crossing of the three 345-kV transmission lines. The collocation would result in reduced impacts to the scenic, cultural and historic, recreational, and natural setting and vicarious experience as a whole of the Carson River NHT segments in the immediate FG.</li> <li>When viewed from and near Fort Churchill historic site, the visual and historical settings would appear more intact due to the setting’s landform scales being more prominent than the Carson River Transmission Alternative A transmission lines. The majority of Carson River Transmission Alternative A would be farther away from the Walker River Segment of the California NHT than the Proposed Action from the Fort Churchill historic site closer to the US 50 NHT segments.</li> <li>South of the Carson River, the three 345-kV transmission lines associated with Carson River Transmission Alternative A would be farther from the California NHT Walker River – Sonora Route than the Proposed Action. The three lines would cross the California NHT Walker River – Sonora Route at a diagonal in the Adrian Valley similar to the Proposed Action.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action with the following exceptions: <ul style="list-style-type: none"> <li>Where Carson River Transmission Alternative C (Fort Churchill to Mira Loma and 345-kV Fort Churchill to Comstock Meadows #1 lines, specifically) would cross US 50 and enter the Pine Nut Mountains, the two transmission lines would be higher in elevation and more visible to the US 50 NHT segments but less visible to the Carson River NHT segments than the Proposed Action.</li> <li>At approximately 2.0 miles away, Carson River Transmission Alternative C would impact the vicarious experience presently available at the Fort Churchill historic site more than the Proposed Action and Carson River Transmission Alternative A, though the site’s visual setting would appear relatively unchanged.</li> <li>South of the Carson River, the three 345-kV transmission lines associated with Carson River Transmission Alternative C would cross the California NHT Walker River – Sonora Route perpendicularly at a consolidated location in northwestern Mason Valley instead of paralleling the NHT for approximately 4.5 miles in the Adrian Valley. The perpendicular crossing of the Carson River Transmission Alternative C would have reduced visual impacts compared to the Proposed Action because the extent of impacts would be limited to an approximately 1.0 mile area (the immediate FG on either side of the crossing).</li> </ul> </li> </ul>

**Table 3-97. Comparison of Alternatives for the Carson River Transmission Line Route Group  
(continued)**

Resource/Use Impact	Carson River Proposed Action	Carson River Transmission Alternative A	Carson River Transmission Alternative C
<p><b>Land Use, Realty, and Indian Trust Assets:</b> What would the physical disturbance or other impacts to operations of existing ROWs or land uses be with the construction, O&amp;M, and decommissioning of the GLWP?</p>	<ul style="list-style-type: none"> <li>The Proposed Action would disturb approximately 2,322.4 acres of private land in the temporary ROW area and approximately 696.9 acres of private land in the permanent ROW area. The Proposed Action would cross lands predominantly planned for rural residential land uses and would be considered a compatible use.</li> <li>The Proposed Action would cross a total of 3 OHV routes a total of 48 times.</li> <li>Approximately 3 percent (2.3 miles) of the Proposed Action would cross sections containing mining claims.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action with the following exceptions:               <ul style="list-style-type: none"> <li>Carson River Transmission Alternative A would disturb similar amounts of private land as the Proposed Action and more than Carson River Transmission Alternative C.</li> <li>Carson River Transmission Alternative A would cross a total of 4 OHV routes a total of 50 times.</li> <li>Similar amounts of Carson River Transmission Alternative A would cross sections containing mining claims as the Proposed Action and less than Carson River Transmission Alternative C.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action with the following exceptions:               <ul style="list-style-type: none"> <li>Carson River Transmission Alternative C would disturb less private land than the Proposed Action and Carson River Transmission Alternative C.</li> <li>Carson River Transmission Alternative C would cross a total of 5 OHV routes a total of 66 times.</li> <li>More of Carson River Transmission Alternative C would cross sections containing mining claims than the Proposed Action or Carson River Transmission Alternative A.</li> </ul> </li> </ul>
<p><b>Water Resources:</b> How would the construction, O&amp;M, and decommissioning of the GLWP affect water resources?</p>	<ul style="list-style-type: none"> <li>The Proposed Action would include approximately 321 surface water crossings in the temporary ROW area and approximately 110 surface water crossings in the permanent ROW area. There would be approximately 439.5 acres of the temporary ROW area and approximately 142.9 acres of the permanent ROW area in high flood risk areas.</li> </ul>	<ul style="list-style-type: none"> <li>Carson River Transmission Alternative A would include approximately 283 surface water crossings in the temporary ROW area and approximately 123 surface water crossings in the permanent ROW area. There would be approximately 383.5 acres of the temporary ROW area and approximately 143.9 acres of the permanent ROW area in high flood risk areas.</li> </ul>	<ul style="list-style-type: none"> <li>Carson River Transmission Alternative C would include 249 surface water crossings in the temporary ROW area and approximately 105 surface water crossings in the permanent ROW area. There would be approximately 293.0 acres of the temporary ROW area and approximately 126.5 acres of the permanent ROW area in high flood risk areas.</li> </ul>
<p><b>Visual Resources:</b> How would the construction, O&amp;M, and decommissioning of the GLWP affect visual resources?</p>	<ul style="list-style-type: none"> <li>The Proposed Action permanent ROW area would cross approximately 391.0 acres of Class B landscapes and approximately 1,349.0 acres of Class C landscapes. The scenic quality of the landscape within the FG of the Proposed Action would be noticeably altered and the magnitude of the impact would negligible.</li> <li>Motorists would have views of the Proposed Action for a total of approximately 3 minutes on US 50 and 26 minutes on US 95A.</li> <li>The Proposed Action would be visible from approximately 43 percent of the Dayton SVP, approximately 9 percent of the Silver Springs SVP, and 100 percent of the Stagecoach SVP. The portions of the Proposed Action visible would not attract the attention of the casual observer from the Dayton or Silver Springs SVPs and would begin to attract attention from the Stagecoach SVP.</li> <li>Under the Proposed Action, SDA SVPs that could have views of the alternative include the Fort Churchill State Historic Park and its Visitor Center viewpoint. The Proposed Action would be visible from the Visitor Center viewpoint in the MG only. Additionally, approximately 32 percent of the Fort Churchill State Historic Park would have views of the Proposed Action. Depending on the location within the SVP, the Proposed Action would range from the landscape appearing intact and not attracting attention to the landscape being noticeably altered and beginning to attract attention. The magnitude of impact would depend on the visibility of the 345-kV transmission lines, the distance that the lines would be viewed from, and the backdrop. The Proposed Action would not attract attention when viewed from Fort Churchill State Historic Park Visitor Center Viewpoint.</li> <li>Recreationists walking along the California NHT would have views of the Proposed Action for a total of approximately 32 hours. Recreationists walking along the Pony Express NHT would have views of the Proposed Action for a total of approximately 10 hours. The presence of the Proposed Action within the FG from the California and Pony Express NHTs would be visually discernible and may attract attention from the existing setting and would attract attention when it would cross and pass immediately overhead of the NHTs.</li> <li>The Proposed Action would be in conformance with the VRM Class III and Class IV designated landscapes.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action with the following exceptions:               <ul style="list-style-type: none"> <li>The Carson River Transmission Alternative A permanent ROW area would cross approximately 490.1 acres of Scenic Quality Class B landscapes and approximately 1,335.8 acres of Class C landscapes.</li> <li>Motorists would have views of Carson River Transmission Alternative A for a total of approximately 25 minutes on US 50 and approximately 21 minutes on US 95A.</li> <li>The Carson River Transmission Alternative A would not be visible from the Fort Churchill State Historic Park Visitor Center viewpoint. However, approximately 5 percent of the Fort Churchill State Historic Park would have views of the Carson River Transmission Alternative A within the MG only.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action with the following exceptions:               <ul style="list-style-type: none"> <li>The Carson River Transmission Alternative C permanent ROW area would cross approximately 551.9 acres of Class B landscapes, and approximately 1,383.8 acres of Class C landscapes.</li> <li>Motorists would have views of the Proposed Action for a total of approximately 27 minutes on US 50 and approximately 22 minutes on US 95A.</li> </ul> </li> </ul>
<p><b>Socioeconomic Resources and Environmental Justice:</b> What impact would the construction, O&amp;M, and decommissioning of the GLWP have on socioeconomic resources and EJ populations?</p>	<ul style="list-style-type: none"> <li>The Proposed Action would include short-term economic impacts from the increased demand for public services associated with the construction workforce. Additionally, there would be long-term economic impacts associated with the generation of tax revenues. The Proposed Action would have no disproportionate impacts on EJ populations.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>

**Table 3-97. Comparison of Alternatives for the Carson River Transmission Line Route Group  
(continued)**

Resource/Use Impact	Carson River Proposed Action	Carson River Transmission Alternative A	Carson River Transmission Alternative C
<b>Public Health and Safety, Noise, Fire Management, and Waste:</b> How would construction, O&M, and decommissioning of the GLWP affect public health and safety, noise, fire management, and waste?	<ul style="list-style-type: none"> <li>The Proposed Action would have negligible impacts on public health and safety, noise, and hazardous waste materials and no impact on fire management.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the Proposed Action.</li> </ul>
<b>BLM RMP Conformance</b>	<ul style="list-style-type: none"> <li>VRM: Conforms</li> <li>WWEC: Conforms</li> </ul>	<ul style="list-style-type: none"> <li>VRM: Conforms</li> <li>WWEC: Conforms</li> </ul>	<ul style="list-style-type: none"> <li>VRM: Conforms</li> <li>WWEC: Conforms</li> </ul>

*Table Acronym(s):* BLM – Bureau of Land Management; CCDO – Carson City District Office; DAPE – Direct Area of Potential Effects; EJ – Environmental Justice; FG – Foreground; GHG – Greenhouse gas; GLWP – Greenlink West Transmission Project; kV – Kilovolt; LWC – Lands with Wilderness Characteristics; MG – Middleground; NDSL – Nevada Division of State Lands; NHT – National Historic Trail; NV – Nevada; O&M – Operations and Maintenance; OHV – Off-Highway Vehicle; PFYC – Potential Fossil Yield Classification; PMU – Population Management Unit; RMP – Resource Management Plan; ROW – Right-of-way; SDA – Special Designation Area; SR – State Route; SVP – Sensitive Viewing Platform; TCP – Traditional Cultural Property; US – United States; VAPE – Visual Area of Potential Effects; VRM – Visual Resource Management; WWEC – West-wide Energy Corridor.

*Tables Notes:* Due to rounding, the total mileage/acreage identified by ownership/management agency may not sum precisely.

**Table 3-99. Comparison of Alternatives for the Amargosa and Esmeralda Substation Alternatives and Amargosa Microwave Alternatives**

Resource/Use Impact	AS-1	AS-2 (Proposed Action)	ES-1	ES-2 (Proposed Action)	ES-3	AM-1	AM-2 (Proposed Action)
<b>Land Ownership</b> (temporary ROW area acres)	<ul style="list-style-type: none"> <li>Total: 109.8</li> <li>o BLM: 109.8</li> </ul>	<ul style="list-style-type: none"> <li>Total: 109.0</li> <li>o BLM: 109.0</li> </ul>	<ul style="list-style-type: none"> <li>Total: 108.9</li> <li>o BLM: 108.9</li> </ul>	<ul style="list-style-type: none"> <li>Total: 109.1</li> <li>o BLM: 109.1</li> </ul>	<ul style="list-style-type: none"> <li>Total: 108.9</li> <li>o BLM: 108.9</li> </ul>	<ul style="list-style-type: none"> <li>Total: 2.3</li> <li>o BLM: 0.1</li> <li>o Private: 2.2</li> </ul>	<ul style="list-style-type: none"> <li>Total: 2.3</li> <li>o BLM: 2.3</li> </ul>
<b>Land Ownership</b> (permanent ROW area acres)	<ul style="list-style-type: none"> <li>Total: 109.8</li> <li>o BLM: 109.8</li> </ul>	<ul style="list-style-type: none"> <li>Total: 109.0</li> <li>o BLM: 109.0</li> </ul>	<ul style="list-style-type: none"> <li>Total: 108.9</li> <li>o BLM: 108.9</li> </ul>	<ul style="list-style-type: none"> <li>Total: 109.1</li> <li>o BLM: 109.1</li> </ul>	<ul style="list-style-type: none"> <li>Total: 108.9</li> <li>o BLM: 108.9</li> </ul>	<ul style="list-style-type: none"> <li>Total: 2.3</li> <li>o BLM: 0.1</li> <li>o Private: 2.2</li> </ul>	<ul style="list-style-type: none"> <li>Total: 2.3</li> <li>o BLM: 2.3</li> </ul>
<b>Federally Listed Species:</b> How would construction, O&M, and decommissioning of the GLWP affect federally listed species and their habitat?	<ul style="list-style-type: none"> <li>Similar to the AS-2 (Proposed Action) except that based on the GLWP 2021-2023 surveys, the AS-1 would include 11 Mojave desert tortoise burrows ranging in classification from class 1 to class 5 and Mojave desert tortoise signs at 7 locations within the permanent ROW area.</li> </ul>	<ul style="list-style-type: none"> <li>No impact to Bi-State sage-grouse, Lahontan cutthroat trout, Mount Charleston blue butterfly, northwestern pond turtle, Amargosa niterwort, Ash Meadows gumplant, Ash Meadows blazingstar, Ash Meadows ivesia, Ash Meadows sunray, Ash Meadows milkvetch, or spring-loving centaury.</li> <li>The AS-2 (Proposed Action) would occur within suitable habitat for Mojave desert tortoise. Based on the GLWP 2021-2023 surveys, the AS-2 (Proposed Action) would include nine Burrow Class 5 Mojave desert tortoise burrows and one Burrow Class 2 burrow within the permanent ROW area.</li> <li>The AS-2 (Proposed Action) would not occur within suitable breeding habitat for the southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail. These federally listed bird species could migrate or disperse over the AS-2 (Proposed Action), but impacts would be negligible.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the ES-2 (Proposed Action), except the ES-1 Alternative would be located outside of the Bi-State sage-grouse PMUs and habitat.</li> </ul>	<ul style="list-style-type: none"> <li>No impact to Bi-State sage-grouse, Lahontan cutthroat trout, Mount Charleston blue butterfly, northwestern pond turtle, Amargosa niterwort, Ash Meadows gumplant, Ash Meadows blazingstar, Ash Meadows ivesia, Ash Meadows sunray, Ash Meadows milkvetch, or spring-loving centaury.</li> <li>The ES-2 (Proposed Action) would result in approximately 109.1 acres of disturbance within the White Mountains PMU. However, this substation alternative would be located approximately 8.3 miles from the nearest area of Bi-State sage-grouse habitat.</li> <li>The ES-2 (Proposed Action) would not occur within suitable breeding habitat for the southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail. These federally listed bird species could migrate or disperse over the ES-2 (Proposed Action), but impacts would be negligible.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the Proposed Action (ES-2), except the ES-3 Alternative would be located outside of the Bi-State sage-grouse PMUs and habitat.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the AM-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>No impact to Bi-State sage-grouse, Lahontan cutthroat trout, Mount Charleston blue butterfly, northwestern pond turtle, Amargosa niterwort, Ash Meadows gumplant, Ash Meadows blazingstar, Ash Meadows ivesia, Ash Meadows sunray, Ash Meadows milkvetch, or spring-loving centaury.</li> <li>Based on the GLWP 2021-2023 surveys, no live Mojave desert tortoise, burrows, carcasses, or sign would be located within the permanent ROW area for the AM-2 (Proposed Action).</li> <li>The AM-2 (Proposed Action) would not occur within suitable breeding habitat for the southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail. These federally listed bird species could migrate or disperse over the AM-2 (Proposed Action), but impacts would be negligible.</li> </ul>

**Table 3-98. Comparison of Alternatives for the Amargosa and Esmeralda Substation Alternatives and Amargosa Microwave Alternatives  
(continued)**

<b>Resource/Use Impact</b>	<b>AS-1</b>	<b>AS-2 (Proposed Action)</b>	<b>ES-1</b>	<b>ES-2 (Proposed Action)</b>	<b>ES-3</b>	<b>AM-1</b>	<b>AM-2 (Proposed Action)</b>
<b>General Vegetation:</b> How would construction, O&M, and decommissioning of the GLWP affect native vegetation, invasive plant species and noxious weeds, and forest resources?	<ul style="list-style-type: none"> <li>Same as the AS-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>The amount of potential temporary and permanent disturbance to native vegetation communities from the AS-2 (Proposed Action) would be minimal compared to amount of these populations in the vegetation analysis area.</li> <li>The AS-2 (Proposed Action) would have a negligible impact on the spread and/or introduction of invasive plant species and noxious weeds because of the implementation of measures to minimize potential effects.</li> <li>The AS-2 (Proposed Action) would have no impacts to forest resources and would not result in impacts or modifications to the existing management of forest resources by the federal ROW agencies.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the ES-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>The amount of potential temporary and permanent disturbance to native vegetation communities from the ES-2 (Proposed Action) would be minimal compared to amount of these populations in the vegetation analysis area.</li> <li>The ES-2 (Proposed Action) would have a negligible impact on the spread and/or introduction of invasive plant species and noxious weeds because of the implementation of measures to minimize potential effects.</li> <li>The ES-2 (Proposed Action) would have no impacts to forest resources and would not result in impacts or modifications to the existing management of forest resources by the federal ROW agencies.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the ES-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>Same as the AM-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>The amount of potential temporary and permanent disturbance to native vegetation communities from the AM-2 (Proposed Action) would be minimal compared to amount of these populations in the vegetation analysis area.</li> <li>The AM-2 (Proposed Action) would have a negligible impact on the spread and/or introduction of invasive plant species and noxious weeds because of the implementation of measures to minimize potential effects.</li> <li>The AM-2 (Proposed Action) would have no impacts to forest resources and would not result in impacts or modifications to the existing management of forest resources by the federal ROW agencies.</li> </ul>
<b>Special Status Species:</b> How would construction, O&M, and decommissioning of the GLWP affect habitat, movement, and behavior of special status species and migratory birds?	<ul style="list-style-type: none"> <li>Similar to the AS-2 (Proposed Action) except the AS-1 is located 5.2 miles west of Lava Dune and is not anticipated to interfere with sand transport and deposition to the dune. As a result, impacts to the five of the special status terrestrial wildlife species endemic to the Lava Dune would be avoided with the implementation of the AS-1 Alternative.</li> </ul>	<ul style="list-style-type: none"> <li>The AS-2 (Proposed Action) boundary would include approximately 109.0 acres that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat.</li> <li>Five of the special status terrestrial wildlife species (Amargosa miloderes weevil, Amargosa Valley darkling beetle, Ash Meadows dune scorpion, Giuliani’s dune scarab, and large aegialian scarab) are only known to occur at two locations, Big Dune and Lava Dune, in the Amargosa Valley. The AS-2 (Proposed Action) may contribute in a trend toward federal listing or loss of viability of the five special status terrestrial wildlife species found on Big Dune and Lava Dune due to its potential to alter sand transport and deposition to Lava Dune.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the ES-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>The ES-2 (Proposed Action) boundary would include approximately 109.1 acres that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the ES-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>Same as the AM-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>The AM-2 (Proposed Action) boundary would include approximately 2.3 acres that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat.</li> </ul>
<b>Bald and Golden Eagles:</b> How would construction, O&M, and decommissioning of the GLWP affect bald and golden eagles?	<ul style="list-style-type: none"> <li>No impact.</li> </ul>	<ul style="list-style-type: none"> <li>No impact.</li> </ul>	<ul style="list-style-type: none"> <li>No impact.</li> </ul>	<ul style="list-style-type: none"> <li>No impact.</li> </ul>	<ul style="list-style-type: none"> <li>No impact.</li> </ul>	<ul style="list-style-type: none"> <li>No impact.</li> </ul>	<ul style="list-style-type: none"> <li>No impact.</li> </ul>



**Table 3-98. Comparison of Alternatives for the Amargosa and Esmeralda Substation Alternatives and Amargosa Microwave Alternatives  
(continued)**

<b>Resource/Use Impact</b>	<b>AS-1</b>	<b>AS-2 (Proposed Action)</b>	<b>ES-1</b>	<b>ES-2 (Proposed Action)</b>	<b>ES-3</b>	<b>AM-1</b>	<b>AM-2 (Proposed Action)</b>
<b>General Wildlife:</b> How would construction, O&M, and decommissioning of the GLWP affect general wildlife?	<ul style="list-style-type: none"> <li>Similar to the AS-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>The AS-2 (Proposed Action) would include approximately 109.0 acres of permanent ROW area resulting in impacts on general wildlife. These impacts would include habitat loss and fragmentation; collisions with or crushing by vehicles and equipment; increased avian predation; and temporary disturbance from noise, vehicles, and human presence.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the ES-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>The ES-2 (Proposed Action) would include approximately 109.1 acres of permanent ROW area, resulting in impacts on general wildlife. These impacts would include habitat loss and fragmentation; collisions with or crushing by vehicles and equipment; increased avian predation; and temporary disturbance from noise, vehicles, and human presence.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the ES-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the AM-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>The AM-2 (Proposed Action) would include approximately 2.3 acres of permanent ROW area resulting in impacts on general wildlife. These impacts would include habitat loss and fragmentation; collisions with or crushing by vehicles and equipment; increased avian predation; and temporary disturbance from noise, vehicles, and human presence.</li> </ul>
<b>Cultural Resources:</b> Would historic properties be affected by the construction, O&M, and decommissioning of the GLWP?	<ul style="list-style-type: none"> <li>Within the AS-1 Cultural Resources DAPE/VAPE, 0 cultural resource sites/historic properties would have adverse effects, 0 would have no adverse effects, and 4 would have no effects.</li> </ul>	<ul style="list-style-type: none"> <li>Within the AS-2 (Proposed Action) Cultural Resources DAPE/VAPE, 2 cultural resource sites/historic properties would have adverse effects, 0 would have no adverse effects, and 0 would have no effects.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the ES-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>Within the ES-2 (Proposed Action) Cultural Resources DAPE/VAPE, 0 cultural resource sites/historic properties would have adverse effects, 0 would have no adverse effects, and 1 would have no effects.</li> </ul>	<ul style="list-style-type: none"> <li>Within the ES-3 Cultural Resources DAPE/VAPE, 1 cultural resource site/historic property would have adverse effects, 1 would have no adverse effects, and 4 would have no effects.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the AM-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>Within the AM-2 (Proposed Action) Cultural Resources DAPE/VAPE, 0 cultural resource sites/historic properties would have adverse effects, 0 would have no adverse effects, and 0 would have no effects.</li> </ul>
<b>Native American Religious Concerns:</b> How would sacred sites or TCPs be affected by construction, O&M, and decommissioning of the GLWP?	<ul style="list-style-type: none"> <li>Same as the AS-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>The AS-2 (Proposed Action) may directly and/or indirectly impact some areas of Native American religious concern. Direct impacts would come from ground disturbance during construction, restricting access to sacred sites, and from visual changes due to new infrastructure. Ground-disturbing activities could have direct physical impacts on prayer sites such as displacement, damage, or destruction of features.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the ES-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>The ES-2 (Proposed Action) may directly and/or indirectly impact some areas of Native American religious concern. Direct impacts would come from ground disturbance during construction, restricting access to sacred sites, and from visual changes due to new infrastructure. Ground-disturbing activities could have direct physical impacts on prayer sites such as displacement, damage, or destruction of features.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the ES-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>Same as the AM-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>The AM-2 (Proposed Action) may directly and/or indirectly impact some areas of Native American religious concern. Direct impacts would come from ground disturbance during construction, restricting access to sacred sites, and from visual changes due to new infrastructure. Ground-disturbing activities could have direct physical impacts on prayer sites such as displacement, damage, or destruction of features.</li> </ul>
<b>Paleontological Resources:</b> How would construction, O&M, and decommissioning of the GLWP affect paleontological resources?	<ul style="list-style-type: none"> <li>Similar to the AS-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>The AS-2 (Proposed Action) would cross approximately 109.0 acres of low (PFYC 2) paleontological potential.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the ES-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>The ES-2 (Proposed Action) would cross approximately 109.1 acres of low (PFYC 2) paleontological potential.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the ES-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>The AM-1 Alternative would cross approximately 2.3 acres of low (PFYC 2) paleontological potential.</li> </ul>	<ul style="list-style-type: none"> <li>The AM-2 (Proposed Action) would cross approximately 1.1 acres of low (PFYC 2) and 1.2 acres of unknown (PFYC U) paleontological potential.</li> </ul>

**Table 3-98. Comparison of Alternatives for the Amargosa and Esmeralda Substation Alternatives and Amargosa Microwave Alternatives  
(continued)**

Resource/Use Impact	AS-1	AS-2 (Proposed Action)	ES-1	ES-2 (Proposed Action)	ES-3	AM-1	AM-2 (Proposed Action)
<p><b>Earth Resources:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect the earth resources of geology, soils, and minerals?</p>	<ul style="list-style-type: none"> <li>Similar to the AS-2 (Proposed Action), with the following exceptions:</li> <li>The AS-1 would be located approximately 5.2 miles west of Lava Dune and approximately 2.7 miles northwest of Big Dune. The AS-1 Alternative would not interfere with the sand transport and deposition to either dune formation because the strongest winds come from the south-southeast.</li> <li>There is no prime farmland if irrigated, irrigated and drained, or irrigated and reclaimed of excess salts and sodium soils associated with the AS-1 Alternative temporary or permanent ROW areas. This alternative would include approximately 191.3 acres of temporary and approximately ROW area 139.3 acres of permanent ROW area that are considered farmland of statewide importance, if irrigated.</li> </ul>	<ul style="list-style-type: none"> <li>The AS-2 (Proposed Action) temporary permanent ROW areas would be approximately 158.3 acres and 129.2 acres, respectively.</li> <li>The AS-2 (Proposed Action) would be located approximately 3.1 miles east of Big Dune and would not interfere with sand transport and deposition to this dune. Construction of the AS-2 (Proposed Action) may impact the sand transport to Lava Dune because the strongest winds consistently come from the south-southeast and AS-2 (Proposed Action) would be located along the south side of US 95 approximately 1.2 miles south of this dune.</li> <li>The AS-2 (Proposed Action) temporary and permanent ROW areas would have low soil wind susceptibility and low susceptible soils for erosion and runoff.</li> <li>There is no prime farmland if irrigated, irrigated and drained, or irrigated and reclaimed of excess salts and sodium soils associated with the AS-2 (Proposed Action) temporary or permanent ROW areas in this portion of the soil resources analysis area. The AS-2 (Proposed Action) would not cross any areas that are considered farmland of statewide importance, if irrigated, within its temporary or permanent ROW areas.</li> <li>The AS-2 (Proposed Action) would not cross any mining districts.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the ES-2 (Proposed Action), with the following exceptions:</li> <li>All of the ES-1 temporary ROW area and approximately 23 percent of the permanent ROW area would be considered highly susceptible to wind erosion.</li> </ul>	<ul style="list-style-type: none"> <li>The ES-2 (Proposed Action) temporary and permanent ROW areas would be approximately 233.4 acres and approximately 150.2 acres, respectively.</li> <li>Wind erosion susceptibility for the ES-2 (Proposed Action) would be considered high for both temporary and permanent ROW areas.</li> <li>The temporary and permanent ROW areas for the ES-2 (Proposed Action) (with the exception of the access road and transmission line going into the substation) would have soils with low range for water erosion and runoff rates.</li> <li>There is no prime farmland if irrigated, irrigated and drained, or irrigated and reclaimed of excess salts and sodium associated with the ES-2 (Proposed Action) temporary or permanent ROW areas.</li> <li>The ES-2 (Proposed Action) would cross the Rhodes Marsh and Coaldale mining districts. The permanent ROW area for this alternative would represent less than one percent of the Coaldale Mining District and approximately one percent of the Rhodes Marsh Mining District.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the ES-2 (Proposed Action), with the following exceptions: <ul style="list-style-type: none"> <li>There would be approximately 32 percent and approximately 2 percent of the ES-3 temporary and permanent ROW areas, respectively, that would have a low soil wind susceptibility rating.</li> <li>The ES-3 would be the only Esmeralda Substation Alternative that would include approximately 15.3 acres of temporary and approximately 7.6 acres of permanent ROW areas, respectively, considered farmland of statewide importance, if irrigated.</li> <li>The ES-3 would not cross any mining districts.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Similar to the AM-2 (Proposed Action), except the amount of temporary and permanent ROW areas for the AM-1 would be approximately 2.3 acres each.</li> </ul>	<ul style="list-style-type: none"> <li>The AM-2 (Proposed Action) temporary and permanent ROW areas would be approximately 5.3 acres and 3.4 acres, respectively.</li> <li>Wind and water erosion factors are low for the AM-2 (Proposed Action).</li> <li>There is no prime farmland if irrigated, irrigated and drained, or irrigated and reclaimed of excess salts and sodium, or farmland of statewide importance soils associated with the AM-2 (Proposed Action).</li> <li>The AM-2 (Proposed Action) would be within the Ash Meadows Mining District; however, the relatively small amount of permanent ROW area would be less than one percent of the mining district.</li> </ul>
<p><b>Air Quality, Climate Change, and Greenhouse Gas Emissions:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect air quality?</p>	<ul style="list-style-type: none"> <li>Same as the AS-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>The AS-2 (Proposed Action) would result in negligible impacts to air quality from low-level particulate matter emissions from construction, O&amp;M, and decommissioning activities that may generate fugitive dust (particulates).</li> <li>The construction of the AS-2 (Proposed Action) would result in GHG emissions over the short-term. The majority of these emissions would occur during the construction and decommissioning phases. Minimal increases could potentially occur during O&amp;M.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the ES-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>The ES-2 (Proposed Action) would result in negligible impacts to air quality from low-level particulate matter emissions from construction, O&amp;M, and decommissioning activities that may generate fugitive dust (particulates).</li> <li>The construction of the ES-2 (Proposed Action) would result in GHG emissions over the short-term. The majority of these emissions would occur during the construction and decommissioning phases. Minimal increases could potentially occur during O&amp;M.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the ES-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>Same as AM-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>The AM-2 (Proposed Action) would result in negligible impacts to air quality from low-level particulate matter emissions from construction, O&amp;M, and decommissioning activities that may generate fugitive dust (particulates).</li> <li>The construction of the AM-2 (Proposed Action) would result in GHG emissions over the short-term. The majority of these emissions would occur during the construction and decommissioning phases. Minimal increases could potentially occur during O&amp;M.</li> </ul>

**Table 3-98. Comparison of Alternatives for the Amargosa and Esmeralda Substation Alternatives and Amargosa Microwave Alternatives  
(continued)**

<b>Resource/Use Impact</b>	<b>AS-1</b>	<b>AS-2 (Proposed Action)</b>	<b>ES-1</b>	<b>ES-2 (Proposed Action)</b>	<b>ES-3</b>	<b>AM-1</b>	<b>AM-2 (Proposed Action)</b>
<b>Special Designation Areas:</b> How would construction, O&M, and decommissioning of the GLWP affect SDAs?	• No impact.	• No impact.	• No impact.	• No impact.	• No impact.	• No impact.	• No impact.
<b>National Historic Trails and Trails Under Study for Congressional Designation:</b> How would the construction, O&M, and decommissioning of the GLWP affect NHTs (Old Spanish, California, and Pony Express) and feasible and suitable portions of the Central Overland Emigrant Route?	• No impact.	• No impact.	• No impact.	• No impact.	• No impact.	• No impact.	• No impact.
<b>Land Use, Realty, and Indian Trust Assets:</b> What would the physical disturbance or other impacts to operations of existing ROWs or land uses be with the construction, O&M, and decommissioning of the GLWP?	• Similar to the AS-2 (Proposed Action).	• The AS-2 (Proposed Action) would be located on BLM-administered lands. Dispersed recreation uses in the vicinity of the Proposed Action could be temporarily disrupted during construction or decommissioning activities. There would be no impacts to existing BLM land use authorizations.	• Similar to the ES-2 (Proposed Action), except The ES-1 temporary ROW area would cross less than one percent (199.8 acres) of the Pilot-Table Mountain grazing allotment. The permanent ROW area for this substation alternative would result in the reduction of less than one percent (130.5 acres) of the total grazing forage.	• The ES-2 (Proposed Action) would be located on BLM-administered lands. Dispersed recreation uses in the vicinity of the Proposed Action could be temporarily disrupted during construction or decommissioning activities. The ES-2 (Proposed Action) temporary ROW area would cross less than one percent (157.5 acres) of the Silver Peak grazing allotment. The permanent ROW area for this substation alternative would result in the reduction of up to less than one percent (152.3 acres) of the total grazing forage.	• Similar to the ES-2 (Proposed Action), except the ES-3 temporary and permanent ROW areas would cross two grazing allotments: Sheep Mountain and Silver Peak. The temporary and permanent ROW areas for this substation alternative would cross less than one percent of the Sheep Mountain and Silver Peak grazing allotments, respectively.	• The AM-1 temporary and permanent ROW areas would be located on approximately 2.3 acres each of private land. There are no Nye County planned future land uses for this unincorporated area.	• The AM-2 (Proposed Action) temporary and permanent ROW areas would be located on approximately 5.3 acres and 3.4 acres, respectively, of BLM-administered lands. Dispersed recreation uses in the vicinity of the Proposed Action could be temporarily disrupted during construction or decommissioning activities.
<b>Water Resources:</b> How would the construction, O&M, and decommissioning of the GLWP affect water resources?	• The AS-1 would cross approximately 14 ephemeral washes and approximately 11 ephemeral washes in the temporary and permanent ROW areas, respectively.	• The AS-2 (Proposed Action) would not disturb any ephemeral washes.	• The ES-1 would cross approximately 8 ephemeral washes and approximately 5 ephemeral washes in the temporary and permanent ROW areas, respectively.	• The ES-2 (Proposed Action) would cross approximately 3 ephemeral washes and approximately 1 ephemeral wash in the temporary and permanent ROW areas, respectively.	• The ES-3 would cross approximately 18 ephemeral washes and approximately 14 ephemeral washes in the temporary and permanent ROW areas, respectively.	• No impact.	• No impact.

**Table 3-98. Comparison of Alternatives for the Amargosa and Esmeralda Substation Alternatives and Amargosa Microwave Alternatives  
(continued)**

Resource/Use Impact	AS-1	AS-2 (Proposed Action)	ES-1	ES-2 (Proposed Action)	ES-3	AM-1	AM-2 (Proposed Action)
<p><b>Visual Resources:</b> How would the construction, O&amp;M, and decommissioning of the GLWP affect visual resources?</p>	<ul style="list-style-type: none"> <li>• Similar to the AS-2 (Proposed Action), with the following exceptions:               <ul style="list-style-type: none"> <li>○ Motorists traveling on US 95 would have views of AS-1 for approximately seven minutes.</li> <li>○ The AS-1 would be visible from approximately 27 percent of Big Dune SRMA in the FG and 23 percent in the MG. The AS-1 would dominate the visual setting and the landscape would appear to be altered to the casual observer in the FG.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• The AS-2 (Proposed Action) permanent ROW area would cross approximately 109.0 acres of Scenic Quality Class C landscapes. The AS-2 (Proposed Action) would demand attention, which would lower the scenic quality rating in the FG of the substation. Changes to the landscape character in the MG of AS-2 (Proposed Action) would begin to attract attention and would slightly lower the scenic quality rating.</li> <li>• The entire substation facility would be seen from US 95. Motorists traveling on US 95 would have views of AS-2 (Proposed Action) for approximately eight minutes. The AS-2 (Proposed Action) would demand attention and create strong contrast within the FG area of the US 95 KOP.</li> <li>• The AS-2 (Proposed Action) would be visible from approximately 5 percent of the Big Dune SRMA in the FG and approximately 50 percent in the MG. The AS-2 (Proposed Action) would dominate the visual setting and the landscape would appear to be altered to the casual observer in the FG.</li> <li>• The AS-2 (Proposed Action) would not be in conformance with the VRM Class III management objectives.</li> </ul>	<ul style="list-style-type: none"> <li>• Similar to the ES-2 (Proposed Action), with the following exceptions:               <ul style="list-style-type: none"> <li>○ Motorists would see the entire ES-1 substation facility when traveling on US 95. Motorists on US 95 would have views of the ES-1 for a total of approximately 8 minutes.</li> <li>○ The BLM-administered lands associated with the ES-1 are unclassified for VRM and, as such, conformance determinations with VRM objectives are not applicable.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• The ES-2 (Proposed Action) permanent ROW area would cross approximately 109.1 acres of Scenic Quality Class C landscapes. The ES-2 (Proposed Action) would demand attention and the landscape would appear to be altered in the FG of the substations, which would reduce the scenic quality rating.</li> <li>• The entire substation facility would be seen from US 6 (which is concurrent with US 95 northwest of Tonopah) and SR 265. The ES-2 (Proposed Action) substation facility would be visible and seen for approximately 4 minutes in the FG and approximately 1 minute in the MG when traveling in either direction on US 6 and only in the NB travel direction when traveling on SR 265 for approximately 3 minutes in the FG and approximately 1 minute in the MG. US 6 motorists would have views within the immediate FG of ES-2 (Proposed Action) that would dominate the visual setting and the landscape would appear to be altered to the casual observer.</li> <li>• The ES-2 (Proposed Action) would be located on BLM-administered lands managed as VRM Class IV and would be in conformance with the VRM Class IV objectives.</li> </ul>	<ul style="list-style-type: none"> <li>• Similar to the ES-2 (Proposed Action), with the following exceptions:               <ul style="list-style-type: none"> <li>○ The ES-3 would be located over five miles from US 6 (outside of the MG) and not visually discernible in the landscape from the highway. Motorists on SR 265 would have views of ES-3 for approximately 8 minutes. Motorists traveling SR 265 would have views within the immediate FG of ES-3 and the substation would dominate the visual setting and the landscape would appear to be altered to the casual observer. Outside the immediate FG, but still within the FG, and into the MG, ES-3 would attract attention depending on the distance viewed but would not dominate the view of the casual observer.</li> <li>○ The ES-3 would demand attention and create strong contrast within the FG area of the SR 265 KOP. The ES-3 would not be in conformance with the VRM Class III management objectives.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Similar to the AM-2 (Proposed Action), except the AM-1 is located on private lands and conformance with BLM VRM objectives does not apply.</li> </ul>	<ul style="list-style-type: none"> <li>• The AM-2 (Proposed Action) permanent ROW area would cross approximately 2.3 acres of Scenic Quality Class C landscapes. The AM-2 (Proposed Action) would begin to attract attention which would lower the scenic quality.</li> <li>• Motorists traveling on SR 373 would have views of AM-2 (Proposed Action) for approximately three minutes. The AM-2 (Proposed Action) would begin to attract attention within the visual setting and the landscape would appear to be altered to the casual observer within the FG of SR 373.</li> <li>• There would be views of the AM-2 (Proposed Action) from the Longstreet Inn and Casino entrance viewpoint. Visitors would see the entire microwave facility in the immediate FG from the viewpoint. The AM-2 (Proposed Action) would begin to attract attention within the visual setting and the landscape would appear to be altered to the casual observer within the FG.</li> <li>• The AM-2 (Proposed Action) would be in conformance with the VRM Class III designated landscape because the objective of this class provides for activities that partially retain the existing character of the landscape and attract attention.</li> </ul>
<p><b>Socioeconomic Resources and Environmental Justice:</b> What impact would the construction, O&amp;M, and decommissioning of the GLWP have on socioeconomic resources and EJ populations?</p>	<ul style="list-style-type: none"> <li>• Same as the AS-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>• The AS-2 (Proposed Action) would include short-term economic impacts from the increased demand for public services associated with the construction workforce. Additionally, there would be long-term economic impacts associated with the generation of tax revenues. The Proposed Action would have no disproportionate impacts on EJ populations.</li> </ul>	<ul style="list-style-type: none"> <li>• Same as the ES-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>• The ES-2 (Proposed Action) would include short-term economic impacts from the increased demand for public services associated with the construction workforce. Additionally, there would be long-term economic impacts associated with the generation of tax revenues. The Proposed Action would have no disproportionate impacts on EJ populations.</li> </ul>	<ul style="list-style-type: none"> <li>• Same as the ES-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>• Same as the AM-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>• The AM-2 (Proposed Action) would include short-term economic impacts from the increased demand for public services associated with the construction workforce. Additionally, there would be long-term economic impacts associated with the generation of tax revenues. The Proposed Action would have no disproportionate impacts on EJ populations.</li> </ul>

**Table 3-98. Comparison of Alternatives for the Amargosa and Esmeralda Substation Alternatives and Amargosa Microwave Alternatives  
(continued)**

<b>Resource/Use Impact</b>	<b>AS-1</b>	<b>AS-2 (Proposed Action)</b>	<b>ES-1</b>	<b>ES-2 (Proposed Action)</b>	<b>ES-3</b>	<b>AM-1</b>	<b>AM-2 (Proposed Action)</b>
<b>Public Health and Safety, Noise, Fire Management, and Waste:</b> How would construction, O&M, and decommissioning of the GLWP affect public health and safety, noise, fire management, and waste?	<ul style="list-style-type: none"> <li>Same as the AS-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>The AS-2 (Proposed Action) would have negligible impacts on public health and safety, noise, and hazardous waste materials and no impact on fire management.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the ES-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>The ES-2 (Proposed Action) would have negligible impacts on public health and safety, noise, and hazardous waste materials and no impact on fire management.</li> </ul>	<ul style="list-style-type: none"> <li>Same as the ES-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>Same as the AM-2 (Proposed Action).</li> </ul>	<ul style="list-style-type: none"> <li>The AM-2 (Proposed Action) would have negligible impacts on public health and safety, noise, and hazardous waste materials and no impact on fire management.</li> </ul>
<b>BLM RMP Conformance</b>	<ul style="list-style-type: none"> <li>VRM:                             <ul style="list-style-type: none"> <li>Approximately 109.8 acres of nonconformance.</li> <li>Proposed VRM Class change from Class III to Class IV.</li> </ul> </li> <li>WWEC: Conforms</li> </ul>	<ul style="list-style-type: none"> <li>VRM:                             <ul style="list-style-type: none"> <li>Approximately 109.0 acres of nonconformance.</li> <li>Proposed VRM Class change from Class III to Class IV.</li> </ul> </li> <li>WWEC: Conforms</li> </ul>	<ul style="list-style-type: none"> <li>VRM:                             <ul style="list-style-type: none"> <li>Approximately 108.9 acres of nonconformance.</li> <li>Proposed VRM Class change from Unclassified to Class IV.</li> </ul> </li> <li>WWEC: Conforms</li> </ul>	<ul style="list-style-type: none"> <li>VRM: Conforms</li> <li>WWEC: Conforms</li> </ul>	<ul style="list-style-type: none"> <li>VRM:                             <ul style="list-style-type: none"> <li>Approximately 108.9 acres of nonconformance.</li> <li>Proposed VRM Class change from Class III to Class IV.</li> </ul> </li> <li>WWEC: Conforms</li> </ul>	<ul style="list-style-type: none"> <li>VRM: Not Applicable</li> <li>WWEC: Conforms</li> </ul>	<ul style="list-style-type: none"> <li>VRM: Conforms</li> <li>WWEC: Conforms</li> </ul>

*Table Acronym(s):* AM – Amargosa Microwave; AS – Amargosa Substation; BLM – Bureau of Land Management; DAPE – Direct Area of Potential Effects; EJ; Environmental Justice; ES – Esmeralda Substation; FG – Foreground; GHG – Greenhouse gas; GLWP – Greenlink West Transmission Project; KOP – Key Observation Point; MG – Middleground; MPH – Miles per hour; NB – Northbound; NHT – National Historic Trail; O&M – Operations and Maintenance; PFYC – Potential Fossil Yield Classification; PMU – Population Management Unit; RMP – Resource Management Plan; ROW – Right-of-way; SDA – Special Designation Area; SR – State Route; SRMA – Special Recreation Management Area; SVP – Sensitive Viewing Platform; TCP – Traditional Cultural Property; US – United States; VAPE – Visual Area of Potential Effects; VRM – Visual Resource Management; WEG – Wind Erodibility Group; WWEC – West-wide Energy Corridor.

*Tables Notes:* Due to rounding, the total mileage/acreage identified by ownership/management agency may not sum precisely.

### **3.21 Irreversible and Irrecoverable Commitments of Resources**

A commitment of resources is irreversible when its primary or secondary impacts limit a resource's future options. An irretrievable commitment refers to the use or consumption of resources that are neither renewable nor recoverable for later use by future generations and represents a permanent effect. Construction and decommissioning of the GLWP would require a commitment of natural, physical, human, and fiscal resources; O&M would require similar commitment of these resources. This section describes the irreversible and irretrievable commitments and unavoidable adverse impacts that would occur as a result of the construction, O&M, and decommissioning activities associated with the GLWP.

Construction of the GLWP would require fossil fuels for construction vehicles, equipment, and construction worker vehicles. Electricity would also be used at construction trailers and other facilities during construction. Construction of the GLWP would require the use of various types of raw building materials including cement, aggregate, steel, electrical supplies, piping, and other building materials such as metal, stone, sand, and fill material. Additionally, the fabrication and preparation of these construction materials would require labor and natural resources. Utilization of these resources would be irretrievable. However, these resources are readily available at this time and effects on their continued availability would not be expected.

The construction of the GLWP is expected to create short-term jobs over the anticipated construction timeframe of three years. Full time-equivalent positions would be required to operate and maintain the substations and provide security and maintenance of the transmission lines over the GLWP's life. Construction and O&M of the proposed facilities would require labor, which would be otherwise unavailable for other projects. The commitment of labor is considered irretrievable. This commitment of labor, while irretrievable, would not be considered an adverse effect because the GLWP would be supplying employment opportunities. This employment would have a beneficial impact on the local economy. The GLWP would provide ROW revenues to the Tribes and private landowners and increase local spending, which would also be beneficial. Fiscal resources would be irretrievably committed to construction and operation of the GLWP. These funds would then be unavailable for other projects and activities. It is anticipated that the GLWP would have a positive effect on the local population, including members of the various Tribes, by creating both temporary and long-term jobs and lease revenues. No unavoidable adverse impacts or irreversible and irretrievable commitments of these resources are expected.

The GLWP would limit future use of federally-administered lands and Reservation lands for other uses over the operational life of the GLWP (up to 35 years, including construction and decommissioning). This would not irreversibly and irretrievably commit the land resource as the use could change after the GLWP is decommissioned. Other irreversible and irretrievable commitments of resources for the GLWP are summarized in Table 3-99.

**Table 3-100. Irreversible and Irretrievable Commitments of Resources**

<b>Resource</b>	<b>Type of Commitment</b>	<b>Reason for Commitment</b>	<b>Irreversible</b>	<b>Irretrievable</b>
Air Quality	Degradation of air quality	Construction	No	Construction phase
Earth Resources – Soils	Soil loss and erosion	Construction	Yes	Yes
Biological Resources	Disturbance to and/or loss of habitat, mortality of individual species, and fragmentation of wildlife and plant species	Construction and O&M	Yes	Project life
Cultural Resources	Disturbance or removal of sites	Construction and O&M	Yes	Yes
Native American Religious Concerns	Disturbance or removal of sites, interference with visual setting	Construction and O&M	Yes	Construction phase Project life
Paleontological Resources	Disturbance or removal of fossils	Construction	Yes	Yes
Visual Resources	Degradation of natural scenic quality, viewshed intrusion	Construction and O&M	Yes	Project life
National Historic Trails	Modification of key contributing values and characteristics including degradation of natural scenic quality, viewshed intrusion	Construction and O&M	Yes	Project life
Land Use including Recreation Resources	Disturbance to agriculture and grazing; exclusion of residential, institutional, and industrial uses; increased recreational use along new access roads; increased access construction	Construction and O&M	Yes	Project life
Socioeconomic and EJ Populations	Commitment of labor, fiscal resources	Construction and O&M	No	Project life

*Table Acronym(s):* EJ – Environmental Justice; O&M – Operations and Maintenance

The No Action Alternative would represent no irreversible and irretrievable commitment of resources or unavoidable impacts in relation to the Action Alternatives. However, the No Action Alternative may represent possible impacts to resources on a regional basis because the amount of energy required to meet demand would need to be produced from other sources.

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## CHAPTER 4. RESOURCE MANAGEMENT PLAN (LAND USE AMENDMENTS)

In considering whether to process an ROW application from an outside party, the BLM must consider existing RMPs and other BLM land use plans in terms of how the proposed authorizations and actions either conform or require a RMPA (43 CFR 1610.0-5(b)). In accordance with FLPMA, the BLM must “develop, maintain, and when appropriate, revise land use plans” (43 USC 1712). If a proposed site-specific decision does not conform to the applicable plan, the responsible official may modify the proposed decision to make it conform, reject the proposal, or amend the plan to authorize the action. As described in detail below, the Proposed Action and other Action Alternatives would require several amendments to existing relevant BLM RMPs before the BLM could authorize the GLWP.

Land use planning regulations require that the Draft EIS/RMPA identify the “preferred alternative” for plan amendments that best meet multiple-use and sustained yield mandates of FLPMA. The Final EIS/Proposed RMPA identifies the proposed amendments that the BLM intends to select. Plans that need amendments may be grouped geographically or by type of decision in the same amendment process. Similarly, one amendment process may amend the same or related decisions in more than one land use plan (BLM Land Use Planning Handbook H-1601-1) (BLM 2005).

The BLM plan amendments are subject to public review and procedures outlined in the BLM’s planning regulations (43 CFR 1610.2). Pursuant to these regulations, outreach activities were conducted to gather public input on the GLWP and proposed amendments, planning criteria was developed and circulated for use in amendment evaluation, and an analysis of where plan amendments would be necessary was incorporated into this Final EIS/Proposed RMPA. The BLM plan amendment procedures also call for an extended 90-day public review of proposed plan amendments concurrently with release of the Draft EIS/RMPA. The BLM’s regulations in 43 CFR 1610.3-2 require a concurrent 30-day public protest period (43 CFR 1610.5-2) and 60-day Governor’s Consistency Review with release of the Final EIS/Proposed RMPA.

As indicated in the NOI published in the *Federal Register* on May 2, 2022, the public was notified of the potential for plan amendments for the GLWP. A plan amendment may be required in the event that the BLM selects an Action Alternative that does not conform to the applicable resource management objectives or decision in effect. Except for the RMP amendments proposed here, the GLWP has been designed to conform to the existing applicable plans.

This section considers the BLM land use plan amendments associated with the Action Alternatives proposed in Chapter 2 Section 2.6 Action Alternatives Carried Forward and the impacts from the GLWP-specific impact analysis in Chapter 3. The planning area boundaries are limited to the area needed to bring the portions of the Action Alternatives into conformance or be consistent with the agency plan on lands administered by the relevant BLM DOs. Each Action Alternative’s nonconformance or inconsistency is identified through a comparison to the respective land use plan. In addition, the BLM has determined that plan amendments to modify portions of the designated WWECs should be evaluated in some areas to inform the BLM’s decision-making on current projects because of the utility-scale nature of the GLWP.

No land use conformity review was required for the NPS-administered portions of the GLWP area. The TUSK does not have an existing Master Plan and a ROW is mandated under the enacting legislation. No consideration of whether the GLWP is in conformity with the TUSK was required as a part of this Final EIS/Proposed RMPA.

## 4.1 Applicable RMPs

Actions that occur on federal lands administered by the BLM, including the granting of ROWs under Title V of FLPMA, are guided by decisions recorded in the applicable RMP. The BLM has determined that portions of GLWP Action Alternatives would not conform to certain aspects of the Tonopah RMP (1997), Las Vegas RMP (1998a), Carson City Field Office Consolidated RMP (2001), and the WWEC Approved RMPA/ROD (2009).

## 4.2 Planning Issues and Criteria

As noted in the NOI published in the *Federal Register* on May 2, 2022, the following are general planning criteria developed for the potential plan amendments to help focus the analysis of the impact of amending the various land use plans.

- Criteria 1: The BLM will use a systematic interdisciplinary approach to integrate physical, biological, economic, and other sciences.
- Criteria 2: The BLM will use the best available data regarding natural resources.
- Criteria 3: The BLM will consider the present and potential uses of public lands and where existing RMP decisions are valid, those decisions will remain unchanged.
- Criteria 4: The BLM will consider the relative scarcity of values and availability of alternative means and sites for recognizing those values.
- Criteria 5: Any plan amendments will be completed in compliance with FLPMA, NEPA, and all other relevant federal laws, executive orders, and BLM policies.
- Criteria 6: The BLM will seek coordination and consistency with other government programs including Tribal plans and policies.
- Criteria 7: Existing valid plan decisions will not change, and any new plan decisions will not conflict with existing plan decisions.
- Criteria 8: Any plan amendments will recognize valid existing rights.

## 4.3 Proposed Plan Amendments with Designated WWECs in Las Vegas, Tonopah, and Carson City Field Office Consolidated RMPs

Section 368 of the EAct directed the Secretary of the Interior to designate energy transport corridors under existing authorities (FLPMA and 43 CFR Part 1600). The BLM analyzed energy corridors in a 2008 Final Programmatic EIS, titled Designation of Energy Corridors on Federal Land in the 11 Western States (BLM 2008a). In January 2009, the BLM issued a ROD approving RMP amendments (RMPAs) to include the subsequently designated WWEC or “Section 368” corridors (referred herein as WWEC PEIS/ROD). Information on the WWEC and the Programmatic EIS and ROD is available at <https://corridoreis.anl.gov/>. Designation of Section 368 energy corridors required the BLM to amend specific land use plans, thereby incorporating the plans’ designated corridors. The 2009 WWEC Approved RMPA/ROD amended the Las Vegas, Tonopah, and Carson City Field Office Consolidated RMPs to include designated WWEC corridors by incorporation and restrictions for the use of such corridors, such as pipeline-only or restricted tower height.

As stipulated in a Settlement Agreement resolving a lawsuit challenging the agency decisions designated WWECs, the BLM, DOE, and USFS initiated regional reviews of the WWEC to evaluate designated Section 368 corridors for potential revisions, deletions, or additions based on siting principles identified in the agreement. The reviews led to recommendations for revisions, deletions, and additions that the BLM

may consider. The reviews also determined that potential corridor changes may occur during amendments to land use plans prompted by a project proposing to use a designated corridor (BLM 2021c). The RMPA has initiated modifications to specific segments of the WWEC in the SNDO and BMDO. The modifications proposed by the RMPA would meet the EAct requirement to “improve reliability, relieve congestion, and enhance the capability of the national grid to deliver electricity” (BLM et al. 2022). Table 4-1 provides the rationale for the plan amendments proposed by each Action Alternative associated with designated WWECs for the respective Las Vegas and Tonopah RMPs. The location of the adjustments to the designated WWECs that require plan amendments for the Action Alternatives are shown on Figure 4-1 through Figure 4-11. The width of the adjusted WWECs requiring plan amendments would not change, only the alignments.

#### **4.4 Proposed Plan Amendments with VRM Classifications**

The GLWP area includes landscapes designated as VRM Class II, III, and IV. The BLM’s VRM Class II objective is to retain the existing landscape’s visual character where management/project activities may be seen but should not attract attention. Landscapes designated as VRM Class III allows for management/project activities that may attract attention but should not dominate the view of the casual observer. Major modification of the existing character of the landscape within VRM Class IV provides for management/project activities that would attract attention and dominate the landscape.

There would be transmission and substation Action Alternatives that would not be in conformance with Class III objectives established in the Las Vegas, Tonopah, and Carson City Field Office Consolidated RMPs for the management of visual resource values. When viewed from the immediate FG distance zone (0 to 0.5 miles) of the identified KOPs, construction and operation of the Action Alternatives’ transmission structures would create moderate to strong visual contrast in terms of scale, line, form, color, and texture in the characteristic landscape and would attract attention and dominate the landscape. Therefore, plan amendments would be required to change the VRM class designations in the respective RMPs so that the Action Alternative would be in VRM conformance with the RMP (refer to Section 3.15.4.4, Figure 3-36, Figure 3-37, and Figure 3-38).

In addition, the Final EIS/Proposed RMPA includes a plan amendment for the Las Vegas, Tonopah, and Carson City Field Office Consolidated RMPs to reclassify lands within the WWEC 37-223 (N), WWEC 37-223(S), WWEC 223-224, and WWEC 18-224 to VRM Class IV where the corridors encompass VRM Class II- and Class III-designated areas. The purpose of the WWECs is to designate corridors to collocate transmission lines, pipelines, and other-energy related facilities. Non-collocation of ROWs would generally lead to greater visual impacts for a larger number of viewers over a larger area (BLM 2008a). The VRM Class IV objective allows for major modification to occur and for authorized activities to dominate the view. Minimizing visual contrast remains a requirement of this VRM class objective. The change to VRM Class IV would support the collocation of infrastructure project activities by consolidating the impacts to visual values within a WWEC. Table 4-2, Table 4-3, and Table 4-4 provide the acres of the proposed VRM classification changes by the Las Vegas, Tonopah, and Carson City Field Office Consolidated RMPs from the Action Alternatives, including the substation alternatives, and the reclassification of the WWECs to VRM Class IV. The areas currently unclassified for VRM would be classified to VRM Class IV as well within the WWECs. The locations of the amendments to the VRM classifications are shown on Figure 4-12 through Figure 4-22.

**Table 4-1. Areas of Proposed Plan Amendments by Action Alternative for Designated WWECs**

<b>WWEC</b>	<b>RMP</b>	<b>Action Alternative</b>	<b>Nonconformance Reason</b>	<b>Proposed Amendment</b>	<b>Amendment Rationale</b>	<b>Figure Reference</b>
18-224	WWEC Approved RMPA/ROD (BLM 2009) and by incorporation and thereby amended, Tonopah RMP (BLM 1997)	Beatty Transmission Alternative A	Beatty Transmission Alternative A would be outside WWEC 18-224.	<ul style="list-style-type: none"> <li>• Modify WWEC 18-224 to align with the Beatty Transmission Alternative A from MP 197.5 to MP 202.0</li> <li>• De-designate portions of WWEC 18-224 where the Beatty Transmission Alternative A would be outside of the designated WWEC</li> <li>• Designate new WWEC 18-224 following the Beatty Transmission Alternative A</li> </ul>	The modification would follow the GLWP ROW, if approved, and would become a preferred route for infrastructure/energy transport.	Figure 4-1
18-224	WWEC Approved RMPA/ROD (BLM 2009) and by incorporation and thereby amended, Tonopah RMP (BLM 1997)	Beatty Transmission Alternative C	Beatty Transmission Alternative C would be outside WWEC 18-224.	<ul style="list-style-type: none"> <li>• Modify WWEC 18-224 to align with the Beatty Transmission Alternative C between MP 193.3 to MP 205.2</li> <li>• De-designate portions of WWEC 18-224 where the Beatty Transmission Alternative C would be outside of the designated WWEC</li> <li>• Designate new WWEC 18-224 following Beatty Transmission Alternative C</li> </ul>	The modification would follow the GLWP ROW, if approved, and would become a preferred route for infrastructure/energy transport.	Figure 4-2
18-224	WWEC Approved RMPA/ROD (BLM 2009) and by incorporation and thereby amended, Tonopah RMP (BLM 1997)	Beatty Transmission Alternative G	Beatty Transmission Alternative G would be outside WWEC 18-224.	<ul style="list-style-type: none"> <li>• Modify WWEC 18-224 to align with the Beatty Transmission Alternative G between MP 193.3 to MP 211.2</li> <li>• De-designate portions of WWEC 18-224 where the Beatty Transmission Alternative G would be outside of the designated WWEC</li> <li>• Designate new WWEC 18-224 following the Beatty Transmission Alternative G</li> </ul>	The modification would follow the GLWP ROW, if approved, and would become a preferred route for infrastructure/energy transport.	Figure 4-3

**Table 4-1. Areas of Proposed Plan Amendments by Action Alternative for Designated WWECs  
(continued)**

<b>WWEC</b>	<b>RMP</b>	<b>Action Alternative</b>	<b>Nonconformance Reason</b>	<b>Proposed Amendment</b>	<b>Amendment Rationale</b>	<b>Figure Reference</b>
18-224	WWEC Approved RMPA/ROD (BLM 2009) and by incorporation and thereby amended, Tonopah RMP (BLM 1997)	Beatty Transmission Alternative K	Beatty Transmission Alternative K would be outside WWEC 18-224.	<ul style="list-style-type: none"> <li>• Modify WWEC 18-224 to align with the Beatty Transmission Alternative K from MP 193.3 to MP 197.0, MP 197.5 to MP 202.0, and between MP 202.1 to MP 211.2</li> <li>• De-designate portions of WWEC 18-224 where the Beatty Transmission Alternative K would be outside of the designated WWEC</li> <li>• Designate new WWEC 18-224 following the Beatty Transmission Alternative K.</li> </ul>	The modification would follow GLWP ROW, if approved, and would become a preferred route for infrastructure/energy transport.	Figure 4-4
18-224	WWEC Approved RMPA/ROD (BLM 2009) and by incorporation and thereby amended, Tonopah RMP (BLM 1997)	Beatty Transmission Alternative L	Beatty Transmission Alternative L would be outside WWEC 18-224.	<ul style="list-style-type: none"> <li>• Modify WWEC 18-224 to align with the Beatty Transmission Alternative L between MP 193.3 to MP 197.0, MP 197.5 to MP 202.0, and MP 207.5 to and MP 219.9</li> <li>• De-designate portions of WWEC 18-224 where the Beatty Transmission Alternative L would be outside of the designated WWEC</li> <li>• Designate new WWEC 18-224 following the Beatty Transmission Alternative L</li> </ul>	The modification would follow GLWP ROW, if approved, and would become a preferred route for infrastructure/energy transport.	Figure 4-5
18-224	WWEC Approved RMPA/ROD (BLM 2009) and by incorporation and thereby amended, Tonopah RMP (BLM 1997)	Proposed Action	Proposed Action would be outside WWEC 18-224.	<ul style="list-style-type: none"> <li>• Modify WWEC 18-224 to align with the Proposed Action transmission route between MP 173.0 to MP 178.0</li> <li>• De-designate portions of WWEC 18-224 where the Proposed Action would be outside of the designated WWEC</li> <li>• Designate new WWEC 18-224 following the Proposed Action route</li> </ul>	The modification would follow the GLWP ROW, if approved, and would become a preferred route for infrastructure/energy transport.	Figure 4-6

**Table 4-1. Areas of Proposed Plan Amendments by Action Alternative for Designated WWECs  
(continued)**

<b>WWEC</b>	<b>RMP</b>	<b>Action Alternative</b>	<b>Nonconformance Reason</b>	<b>Proposed Amendment</b>	<b>Amendment Rationale</b>	<b>Figure Reference</b>
18-224	WWEC Approved RMPA/ROD (BLM 2009) and by incorporation and thereby amended, Tonopah RMP (BLM 1997)	Scotty's Junction Transmission Alternative A	Scotty's Junction Transmission Alternative A would be outside WWEC 18-224.	<ul style="list-style-type: none"> <li>• Modify WWEC 18-224 to align with the Scotty's Junction Transmission Alternative A between MP 170.0 to MP 180.8</li> <li>• De-designate portions of WWEC 18-224 where the Scotty's Junction Transmission Alternative A would be outside of the designated WWEC</li> <li>• Designate new WWEC 18-224 following the Scotty's Junction Transmission Alternative A</li> </ul>	The modification would follow the GLWP ROW, if approved, and would become a preferred route for infrastructure/energy transport.	Figure 4-7
18-224	WWEC Approved RMPA/ROD (BLM 2009) and by incorporation and thereby amended, Tonopah RMP (BLM 1997)	Proposed Action	Proposed Action would be outside WWEC 18-224	<ul style="list-style-type: none"> <li>• Modify WWEC 18-224 to align with the Proposed Action transmission route between MP 101.7 to MP 107.6, MP 119.4 to MP 125.5, MP 126.5 to MP 127.0, MP 129.0 to MP 133.9, MP 136.4 to MP 145.1, and MP 147.3 to MP 148.4</li> <li>• De-designate portions of WWEC 18-224 where the Proposed Action would be outside of the designated WWEC</li> <li>• Designate new WWEC 18-224 following the Proposed Action route</li> </ul>	The modification would follow the GLWP ROW, if approved, and would become a preferred route for infrastructure/energy transport.	Figure 4-8
223-224	WWEC Approved RMPA/ROD (BLM 2009) and by incorporation and thereby amended, BLM (1998b)	Proposed Action		<ul style="list-style-type: none"> <li>• Remove portion of the WWEC 223-224 within the TUSK (MP 0.0 to MP 9.3)</li> </ul>	The lands withdrawn in 2011 for the TUSK occurred after the signing of the WWEC Approved RMPA/ROD. Designation of the TUSK was done to protect the paleontological resources as well as the wildlife connectivity, given proximity to Desert NWR.	Figure 4-9

**Table 4-1. Areas of Proposed Plan Amendments by Action Alternative for Designated WWECs  
(continued)**

<b>WWEC</b>	<b>RMP</b>	<b>Action Alternative</b>	<b>Nonconformance Reason</b>	<b>Proposed Amendment</b>	<b>Amendment Rationale</b>	<b>Figure Reference</b>
223-224	WWEC Approved RMPA/ROD (BLM 2009) and by incorporation and thereby amended, BLM (1998b)	Proposed Action	Proposed Action transmission would be outside WWEC 223-224.	<ul style="list-style-type: none"> <li>• Modify WWEC 223-224 to align with the Proposed Action transmission route between MP 10.0 to MP 34.0</li> <li>• De-designate portions of 223-224 Corridor where the Proposed Action would be outside of the designated WWEC</li> <li>• Designate new 223-224 Corridor following the Proposed Action transmission route</li> </ul>	The modification would follow the ROW for the GLWP, if approved, and would become a preferred route for infrastructure/energy transport.	Figure 4-10
37-223(S)	WWEC Approved RMPA/ROD (BLM 2009) and by incorporation and thereby amended, BLM (1998b)	Proposed Action	Overhead transmission line proposed in WWEC 37-223(S), which is an underground-only designated corridor.	<ul style="list-style-type: none"> <li>• Amend a portion of the underground-only designation to allow for overhead transmission line in the portion of the WWEC 37-223(S) where existing overhead transmission lines occur</li> </ul>	The Proposed Action would be located between two existing overhead transmission lines (Lenzie to Northwest 500-kV and Grand Teton to Harry Allen 230-kV). There are three other overhead transmission lines (Harry Allen to Pecos 2 230-kV, Gypsum to Pecos 138-kV/Harry Allen to Pecos 3 230-kV, and Harry Allen to Pecos 1 230-kV) within the current underground only WWEC 37-223(S). The initial recommendation to designate the corridor as underground-only was because of constraints from military-training requirements. The addition of the Proposed Action would not restrict any military training requirements since it would be located between two existing lines and would not be taller than the existing structures. The April 2022 EPA Act of 2005 Section 368 Energy Corridor Review Final Report: Regions 1-6 (BLM 2022a) did not recommend the modification of the portion of WWEC 37-223(S) to permit overhead transmission. Constructing	Figure 4-11

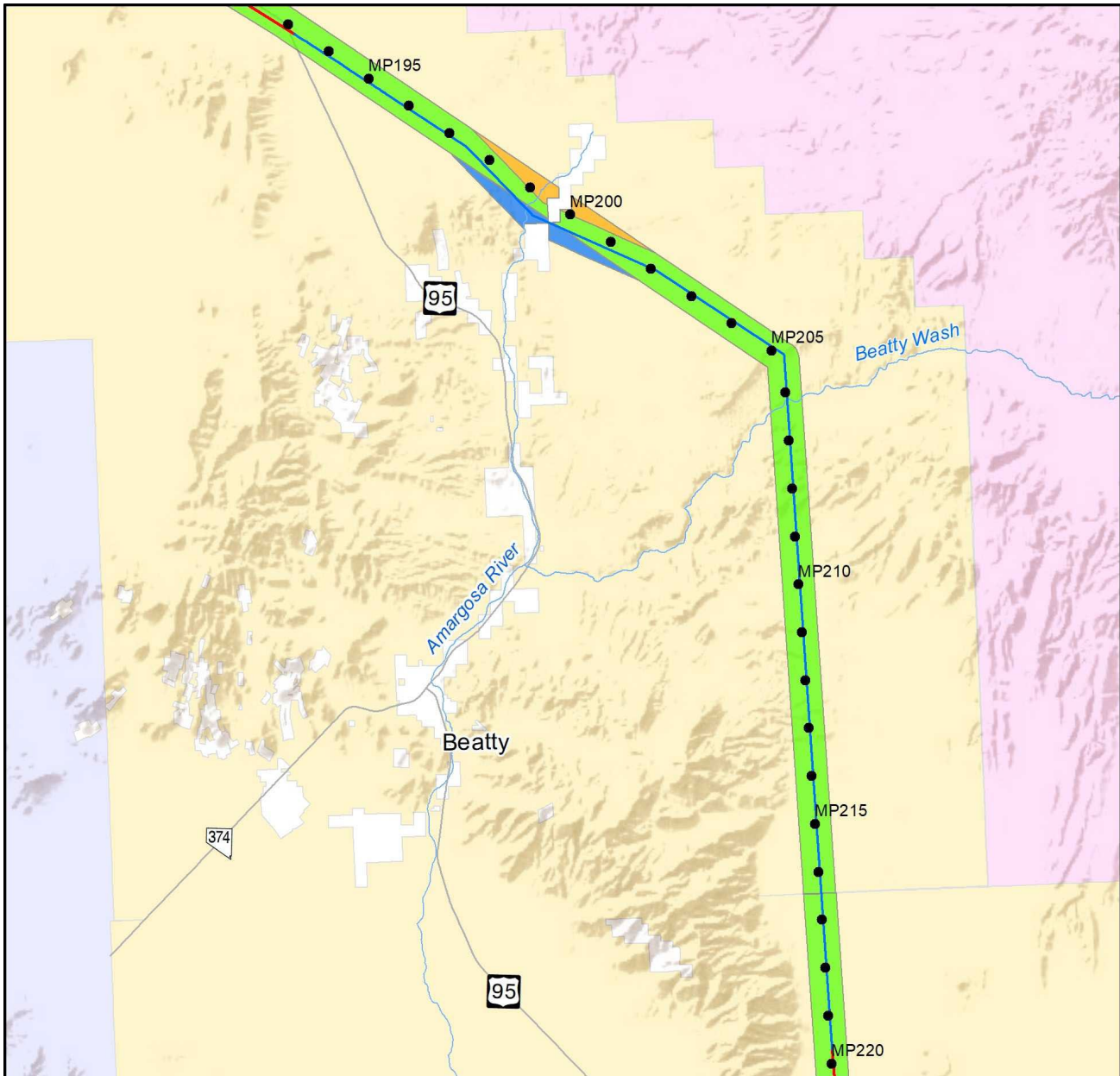
**Table 4-1. Areas of Proposed Plan Amendments by Action Alternative for Designated WWECs  
(continued)**

WWEC	RMP	Action Alternative	Nonconformance Reason	Proposed Amendment	Amendment Rationale	Figure Reference
					the GLWP would meet the intent of the EPAct to improve reliability and enhance the capability of the national grid to deliver electricity. In addition, locating the GLWP within the designated corridor with existing utilities would meet the WWEC's intent to collocate energy in order to avoid or minimize environmental harm. Constructing the GLWP 525-kV transmission line underground would be technically and economically infeasible, would potentially have more environmental impacts because of its greater permanent ground disturbance, and would not respond to the purpose and need to provide electric system reliability (refer to Sections 2.2.9 and 2.3.15 in Appendix AB for more detail analysis of underground EHV 525-kV transmission lines).	

*Table Acronym(s):* BLM – Bureau of Land Management; EHV – Extra-high voltage; EPAct – Energy Policy Act; GLWP – Greenlink West Transmission Project; kV – Kilovolt; MP – Mile post; NWR – National Wildlife Refuge; RMP – Resource Management Plan; RMPA – Resource Management Plan Amendment; ROD – Record of Decision; ROW – Right-of-way; S – South; TUSK – Tule Springs Fossil Beds National Monument; WWEC – West-wide Energy Corridor

*Table Note(s):* <sup>a</sup>The 1998 Las Vegas RMP or its amendments do not contain language designating the Section 368 energy corridors. As such, an amendment to 1998 Las Vegas RMP regarding the energy corridors would be done by incorporation with the GLWP EIS/RMPA.





**Legend**

- Beatty Transmission Alternative A
- Proposed Action
- Transmission Line
- West-wide Energy Corridor (WWEC) Milepost (MP)
- WWEC - Proposed Designate
- WWEC - Proposed De-Designate
- WWEC - No Proposed Change
- Bureau of Land Management
- Private
- Department of Defense
- National Park Service

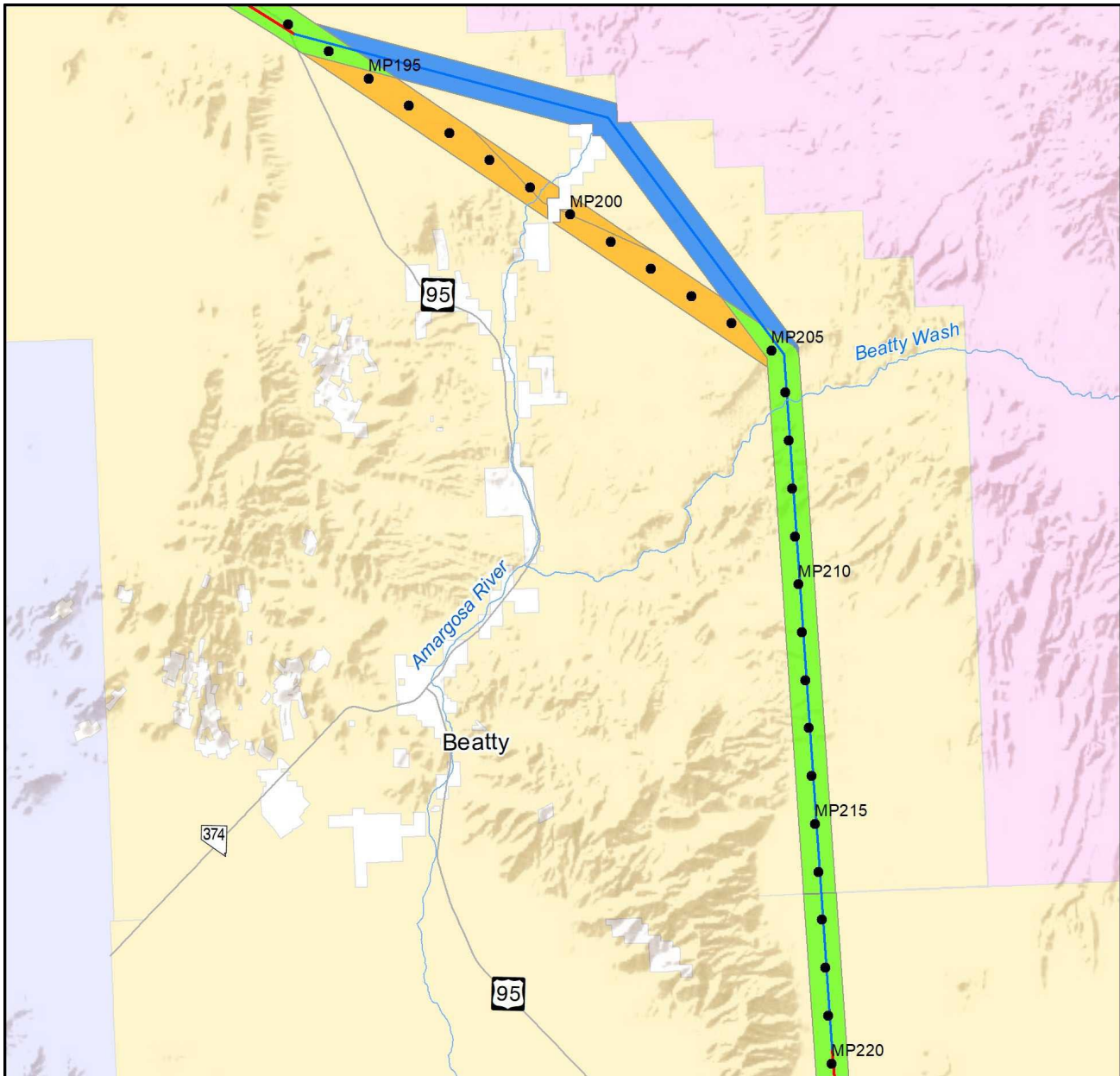


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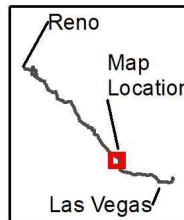
No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure 4-1. WWEC 18-224 (MP 197.5-MP 202.0) Beatty Transmission Alternative A Proposed Amendments to Tonopah RMP**



**Legend**

- Beatty Transmission Alternative C
- Proposed Action
- Transmission Line
- West-wide Energy Corridor (WWEC) Milepost (MP)
- █ WWEC - Proposed Designate
- █ WWEC - Proposed De-Designate
- █ WWEC - No Proposed Change
- █ Bureau of Land Management
- Private
- Department of Defense
- National Park Service

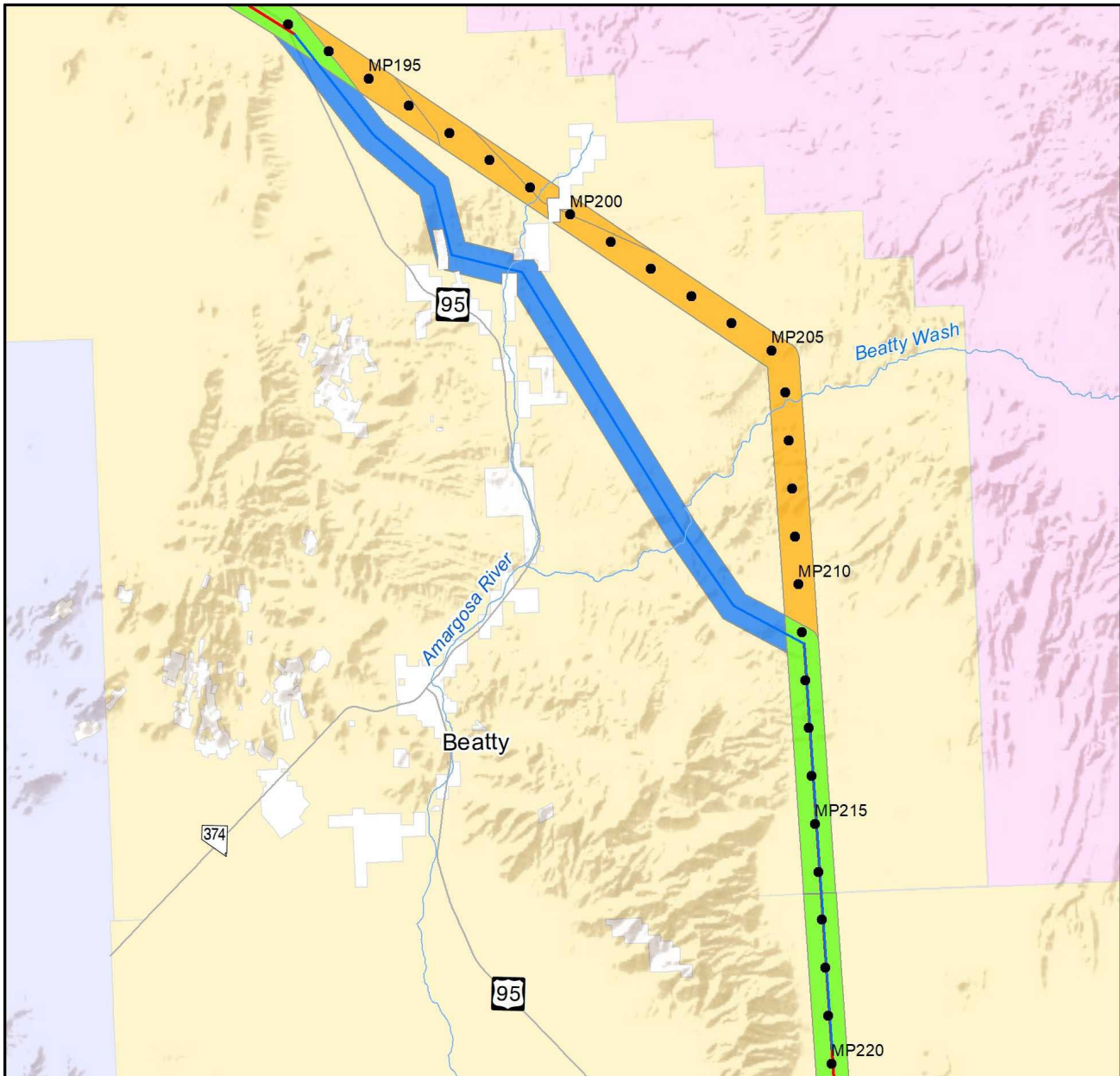


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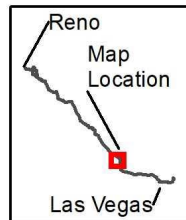
No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure 4-2. WWEC 18-224 (MP 193.3-MP 205.2) Beatty Transmission Alternative C Proposed Amendments to Tonopah RMP**

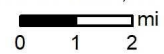


**Legend**

- Betty Transmission Alternative G
- Proposed Action Transmission Line
- West-wide Energy Corridor (WWEC) Milepost (MP)
- WWEC - Proposed Designate
- WWEC - Proposed De-Designate
- WWEC - No Proposed Change
- Bureau of Land Management
- Private
- Department of Defense
- National Park Service

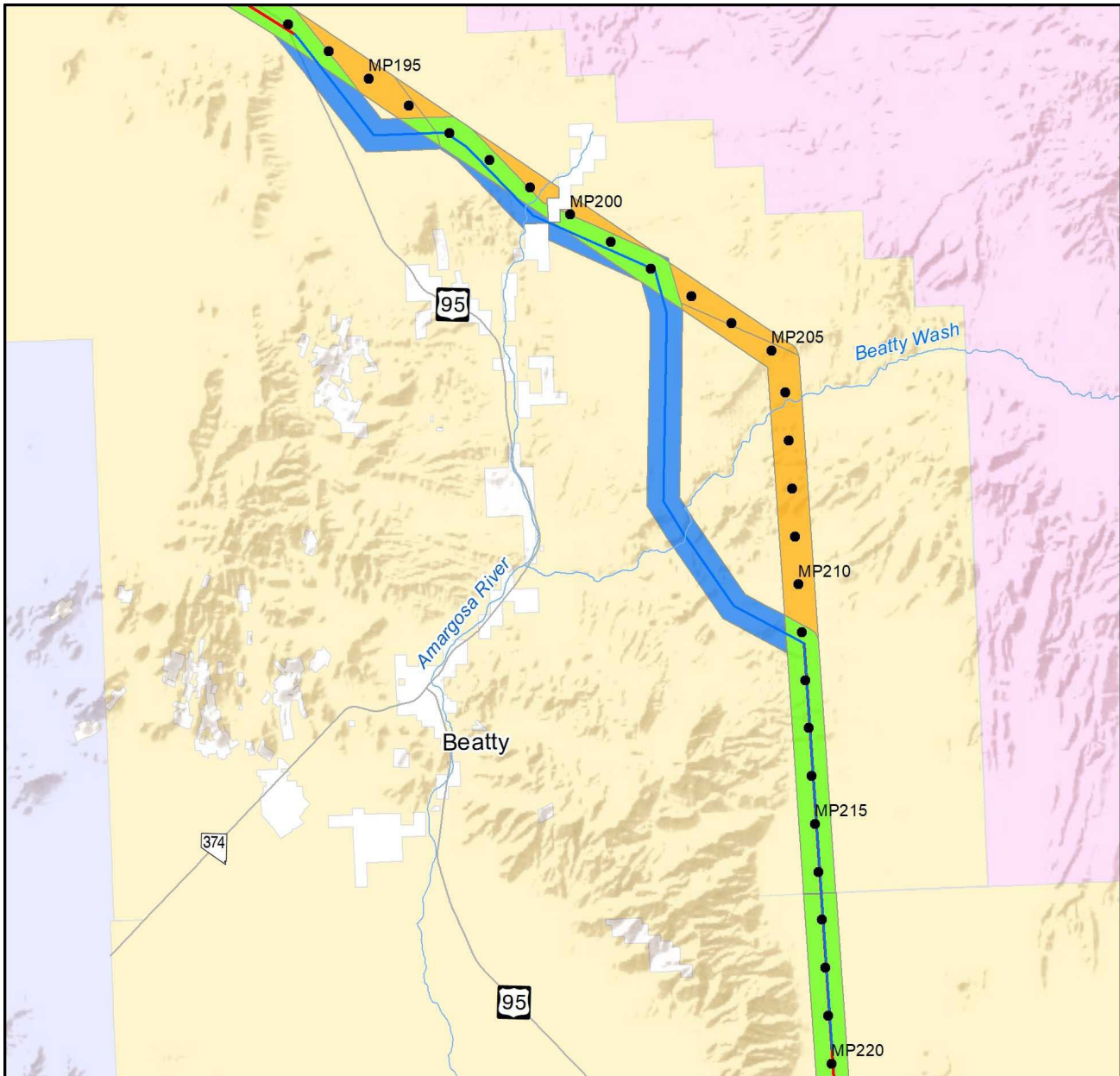


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No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure 4-3. WWEC 18-224 (MP 193.3-MP 211.2) Betty Transmission Alternative G Proposed Amendments to Tonopah RMP**



**Legend**

- Beatty Transmission Alternative K
- Proposed Action Transmission Line
- West-wide Energy Corridor (WWEC) Milepost (MP)
- WWEC - Proposed Designate
- WWEC - Proposed De-Designate
- WWEC - No Proposed Change
- Bureau of Land Management
- Private
- Department of Defense
- National Park Service

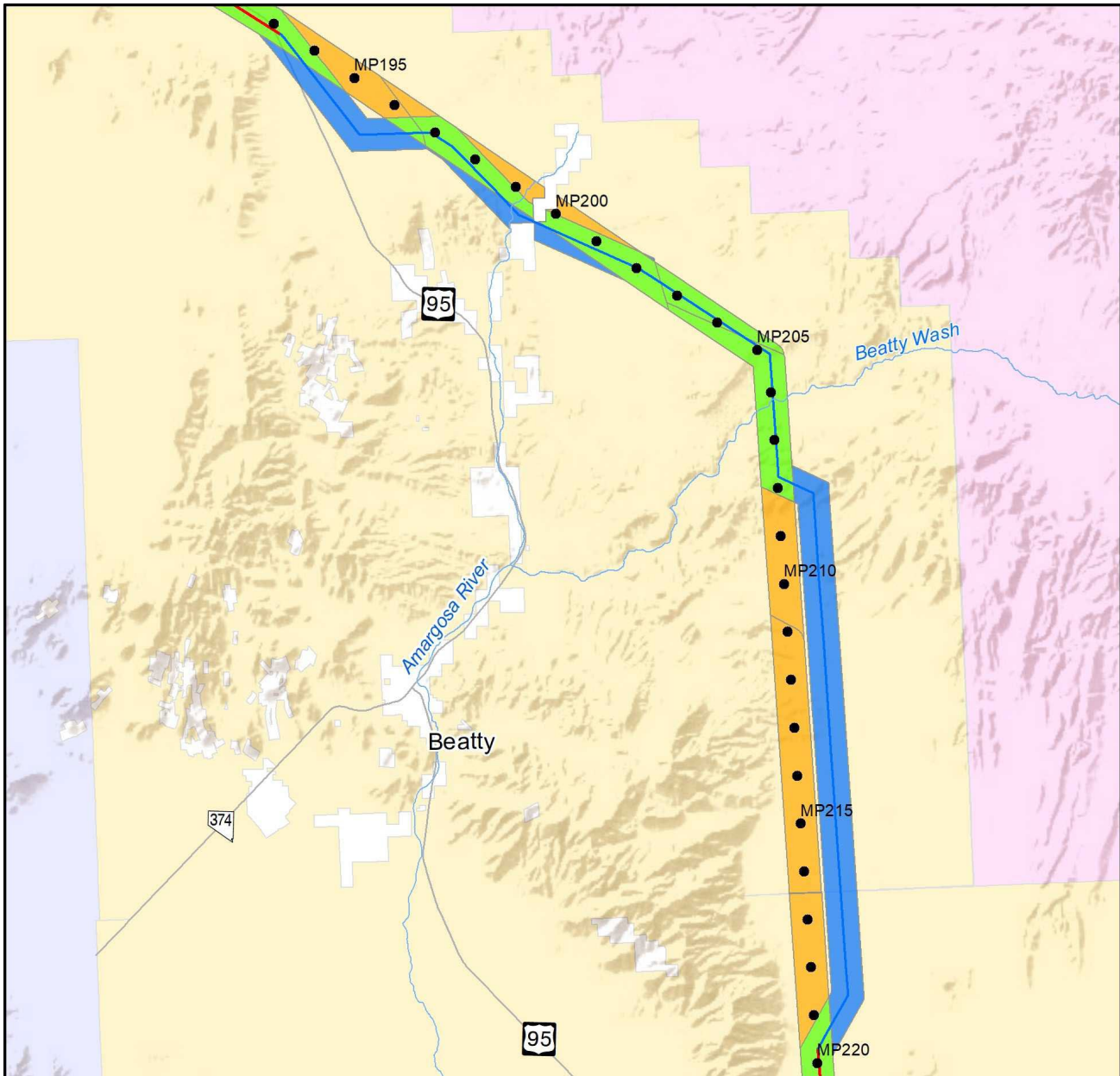


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No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure 4-4. WWEC 18-224 (MP 193.3-MP 211.2) Beatty Transmission Alternative K Proposed Amendments to Tonopah RMP**

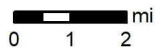


**Legend**

- Betty Transmission Alternative L
- Proposed Action Transmission Line
- West-wide Energy Corridor (WWEC) Milepost (MP)
- WWEC - Proposed Designate
- WWEC - Proposed De-Designate
- WWEC - No Proposed Change
- Bureau of Land Management
- Private
- Department of Defense
- National Park Service

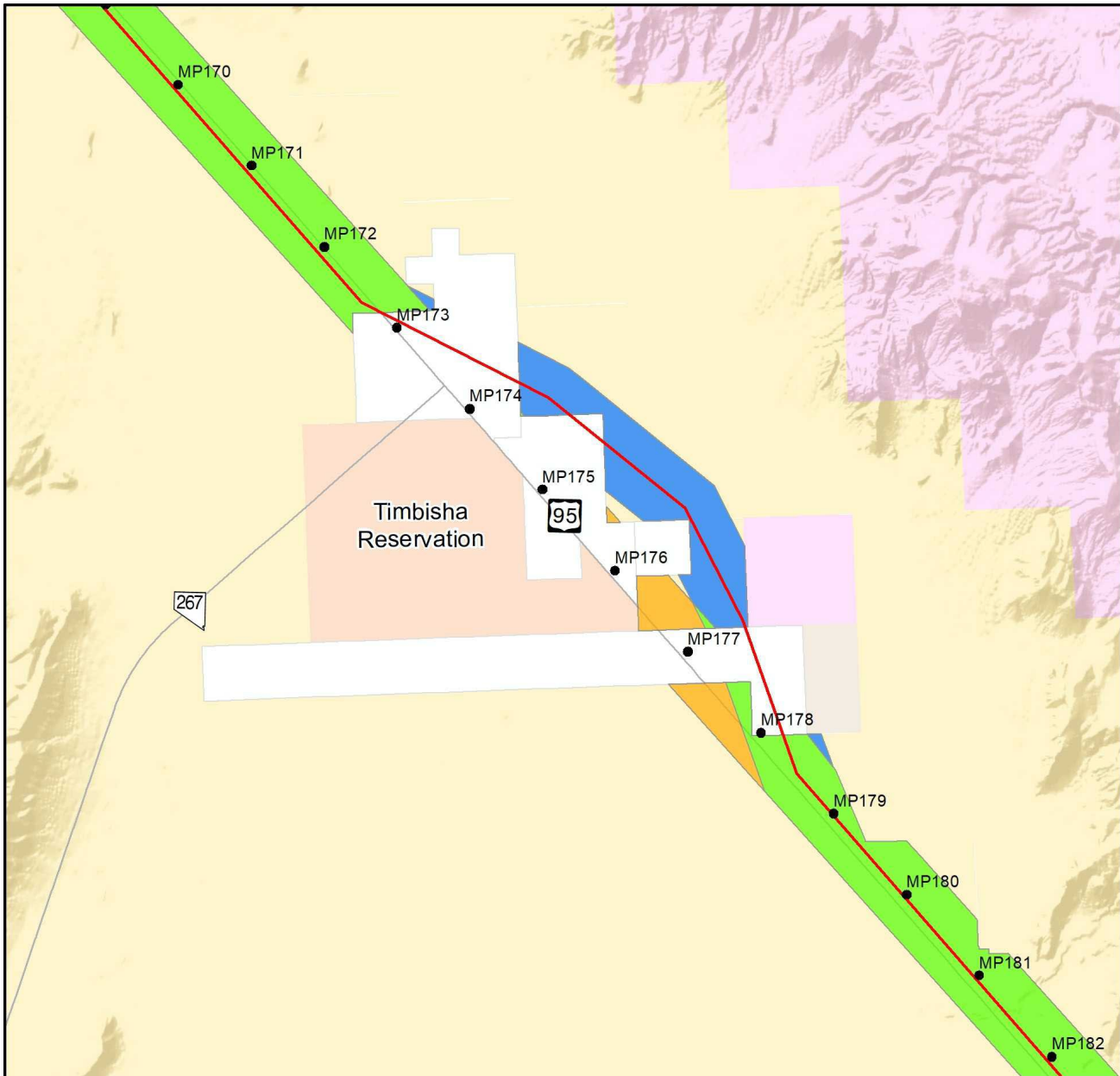


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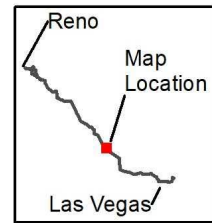
No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure 4-5. WWEC 18-224 (MP 193.3-MP 219.9) Betty Transmission Alternative L Proposed Amendments to Tonopah RMP**

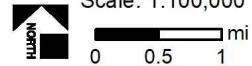


**Legend**

- Proposed Action Transmission Line
- West-wide Energy Corridor (WWEC) Milepost (MP)
- WWEC - Proposed Designate
- WWEC - Proposed De-Designate
- WWEC - No Proposed Change
- Bureau of Indian Affairs
- Bureau of Land Management
- Private
- Department of Defense
- Department of Energy

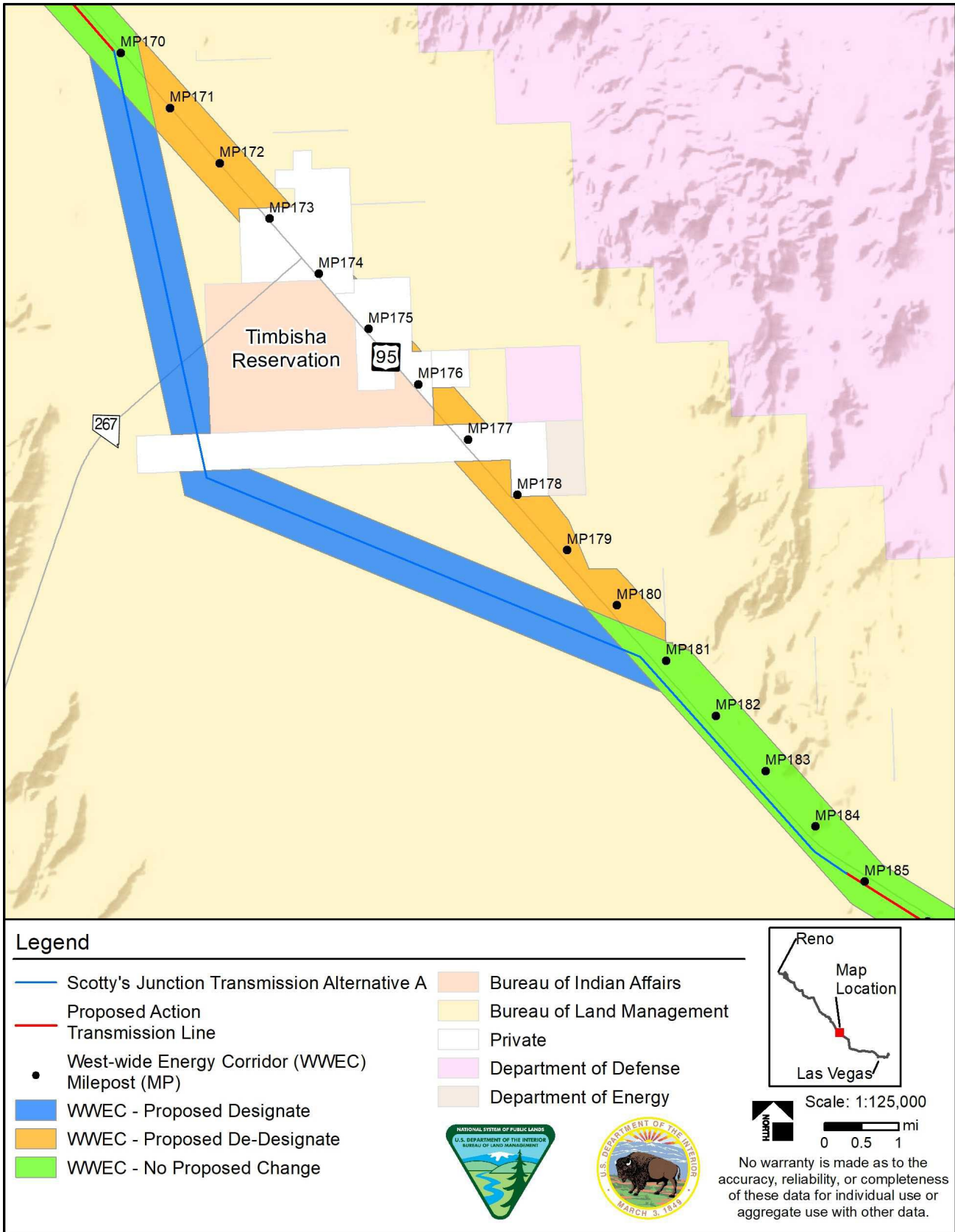


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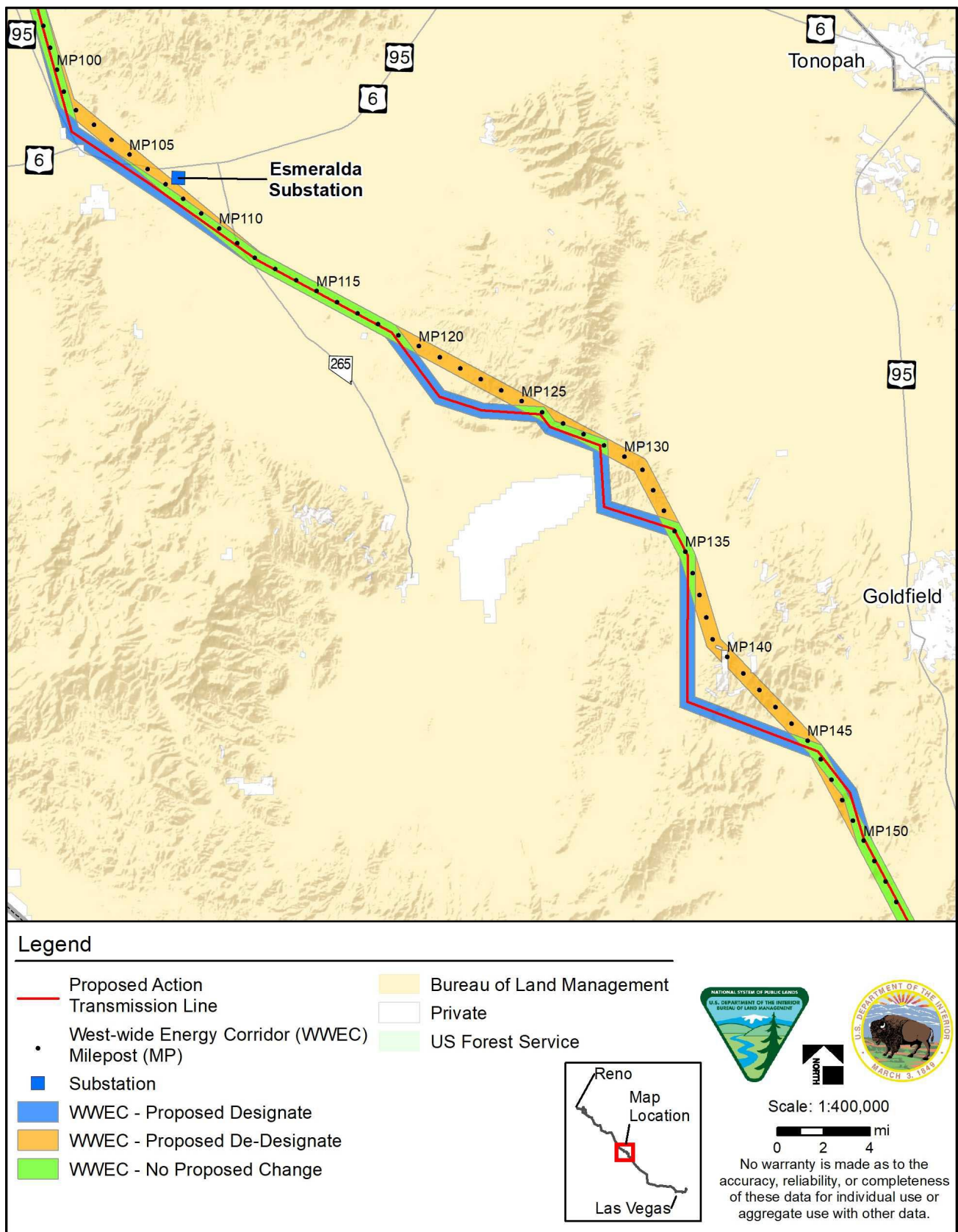


No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure 4-6. WWEC 18-224 (MP 173.0-MP 182.0) Proposed Action Proposed Amendments to Tonopah RMP**

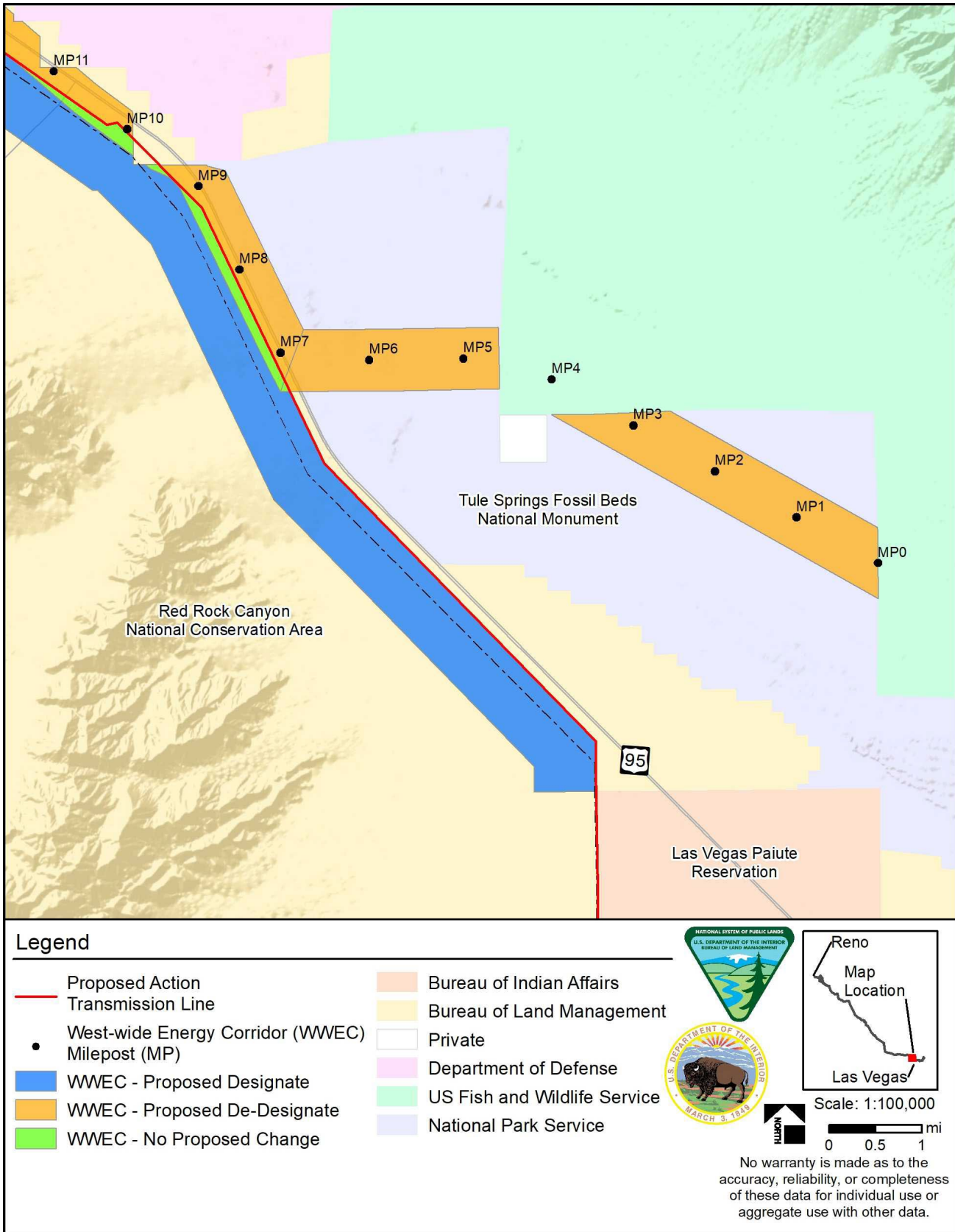


**Figure 4-7. WWEC 18-224 (MP 170.0-MP 180.8) Scotty's Junction Transmission Alternative A Proposed Amendments to Tonopah RMP**

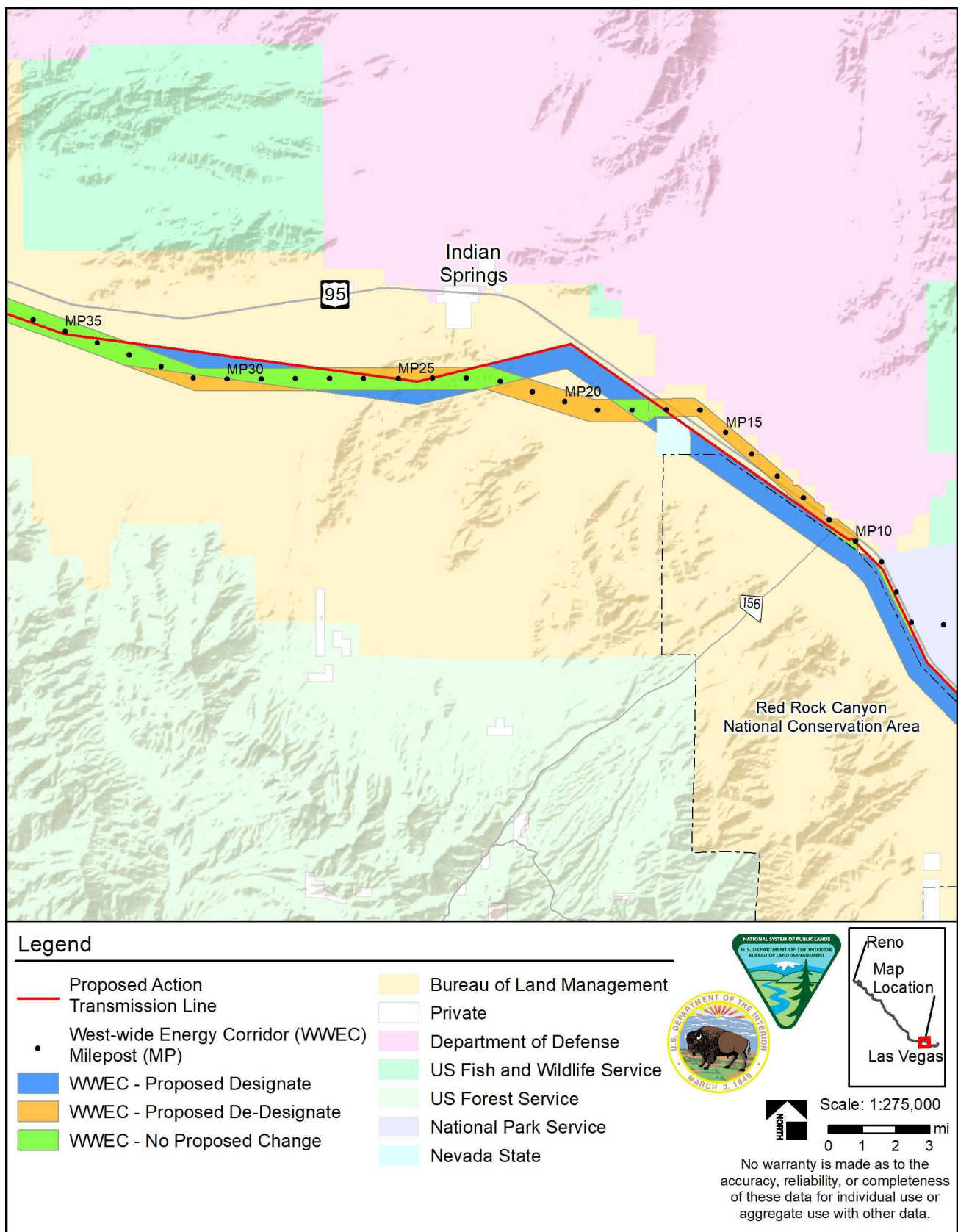


**Figure 4-8. WVEC 18-224 (MP 101.7-MP 148.4) Proposed Action Proposed Amendments to Tonopah RMP**

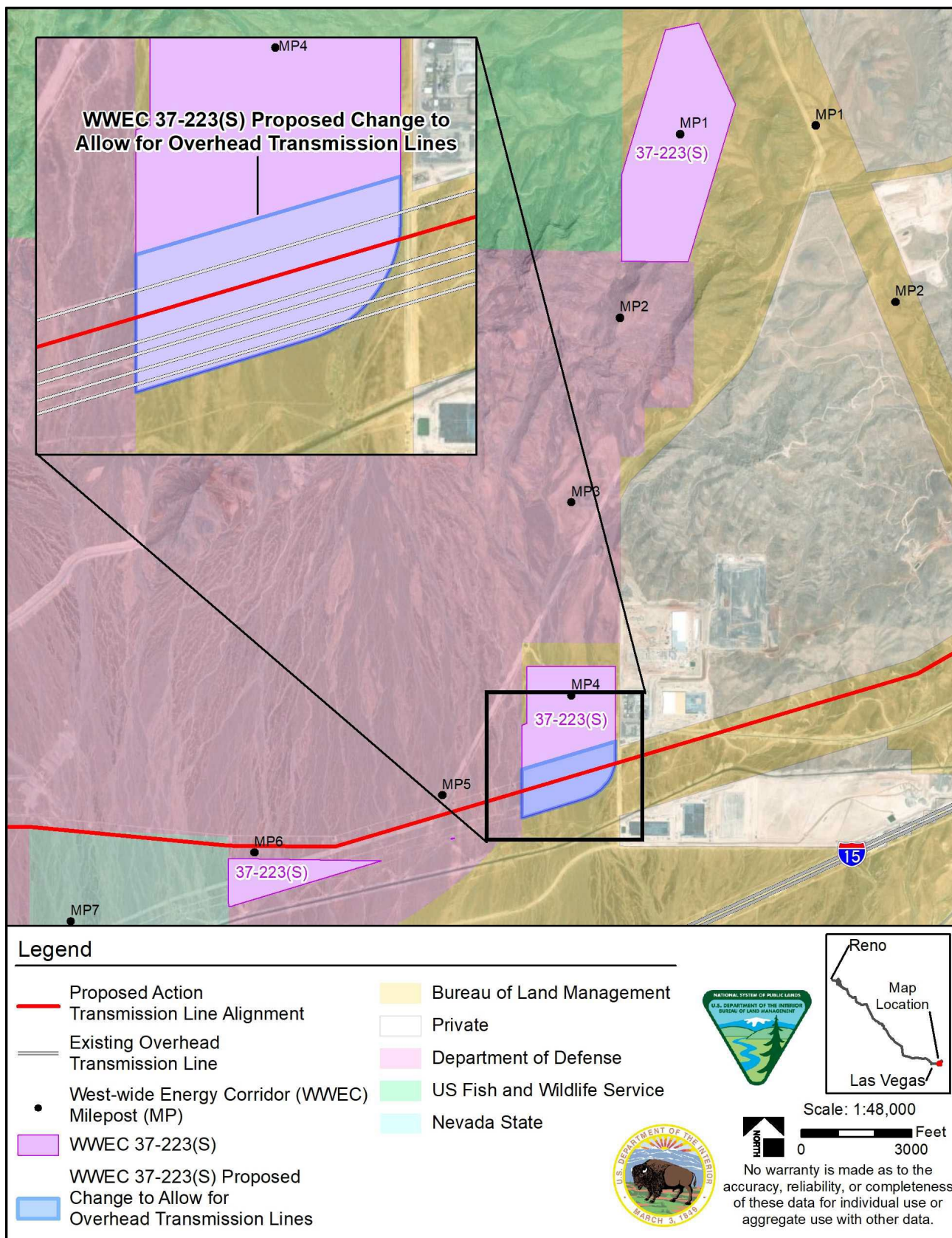




**Figure 4-9. WWEC 223-224 (MP 0.0-MP 9.3) Proposed Action Proposed Amendments to Las Vegas RMP**



**Figure 4-10. WVEC 223-224 (MP 10.0-MP 34.0) Proposed Action Proposed Amendments to Las Vegas RMP**



**Figure 4-11. WWEC 37-223(S) Proposed Action Proposed Amendments to Las Vegas RMP**

**Table 4-2. Las Vegas RMP VRM Proposed Plan Amendments by Action Alternative**

Action Alternative	VRM Class	Proposed VRM Class Change (est. acres)	Current RMP VRM Class (est. acres)	Proposed RMP VRM Class Change (est. acres)	Difference from Existing RMP VRM (percent)
Proposed Action Transmission Line	Unclassified	-1	-	-	-
Proposed Action Transmission Line	Class III	-33,801	1,647,413	1,613,612	-2
Proposed Action Transmission Line	Class IV	+33,802	568,281	602,084	+6
Beatty Transmission Alternatives A, C, G, and K	Class III	-9	1,647,413	1,647,404	<-1
Beatty Transmission Alternatives A, C, G, and K	Class IV	+9	568,281	568,290	<+1
Beatty Transmission Alternative L	Class III	-655	1,647,413	1,646,758	<-1
Beatty Transmission Alternative L	Class IV	+655	568,281	568,936	<+1
AS-1	Class III	-110	1,647,413	1,647,303	<-1
AS-1	Class IV	+110	568,281	568,391	<+1
AS-2 (Proposed Action)	Class III	-109	1,647,413	1,647,304	<-1
AS-2 (Proposed Action)	Class IV	+109	568,281	568,390	<+1

Table Acronym(s): AS – Amargosa Substation; Est. – Estimated; RMP – Resource Management Plan; VRM – Visual Resource Management

Table Source(s): BLM 2022 GIS Data

**Table 4-3. Tonopah RMP VRM Proposed Plan Amendments by Action Alternative**

Action Alternative	VRM Class	Proposed VRM Class Change (est. acres)	Current RMP VRM Class (est. acres)	Proposed RMP VRM Class Change (est. acres)	Difference from Existing RMP VRM (percent)
Proposed Action Transmission Line	Class III	-1,460	485,828	484,365	<-1
Proposed Action Transmission Line	Class IV	+1,460	9,041,693	9,043,153	<+1
ES-3	Class III	-109	485,828	485,719	<-1
ES-3	Class IV	+109	9,041,693	9,041,802	<+1

Table Acronym(s): ES – Esmeralda Substation; Est. – Estimated; RMP – Resource Management Plan; VRM – Visual Resource Management

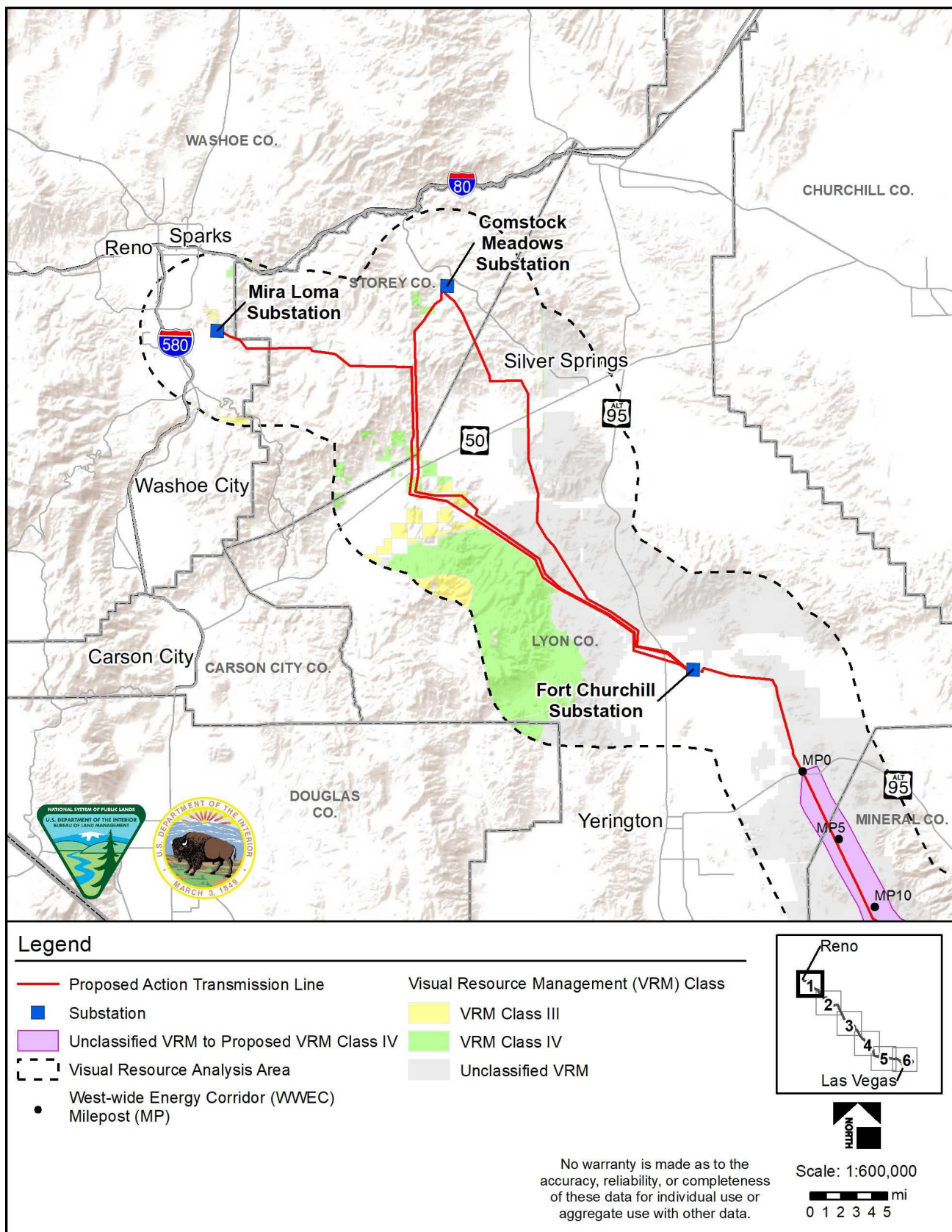
Table Source(s): BLM 2022 GIS Data

**Table 4-4. Carson City Field Office Consolidated RMP VRM Proposed Plan Amendments by Action Alternative**

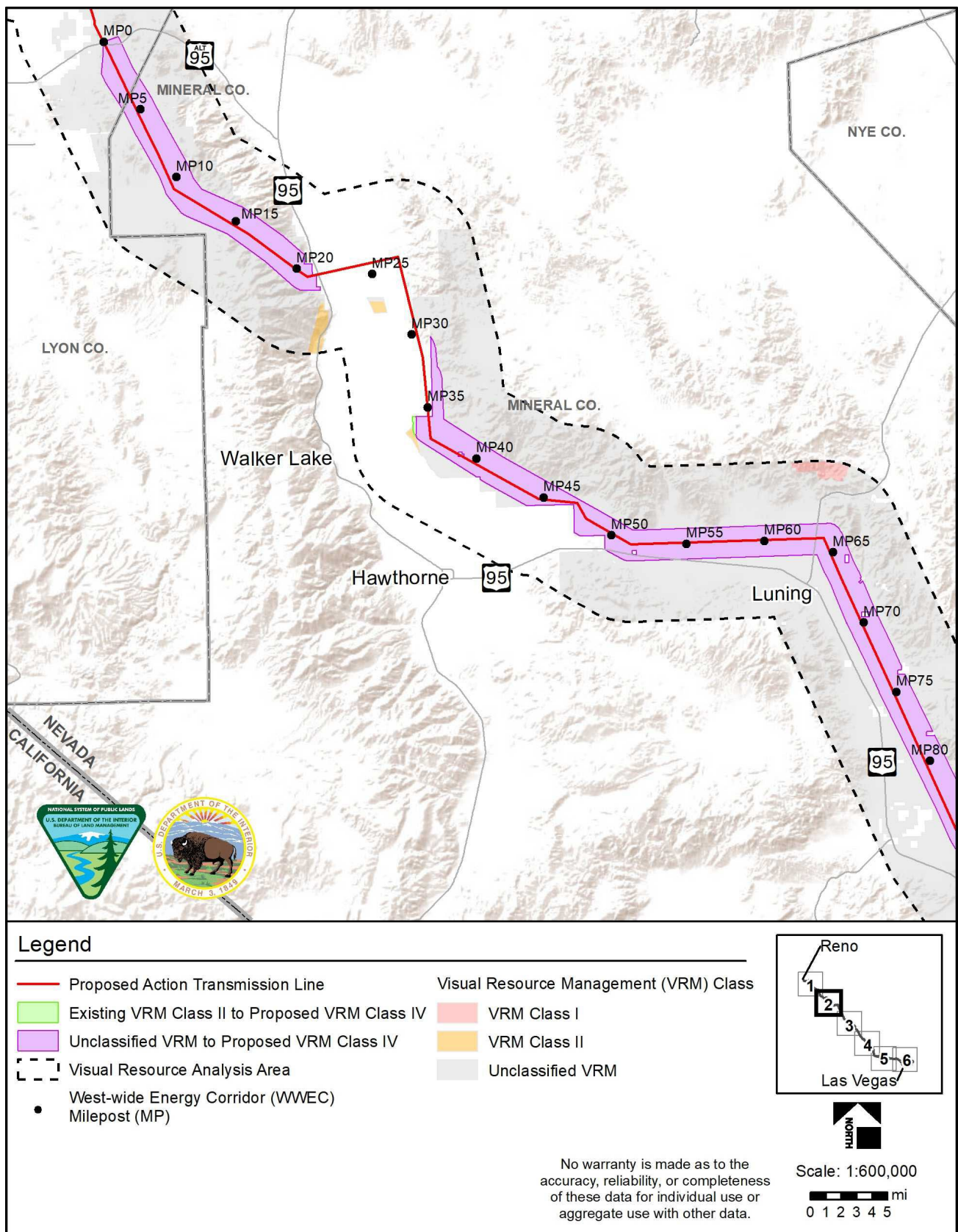
Action Alternative	VRM Class	Proposed VRM Class Change (est. acres)	Current RMP VRM Class (est. acres)	Proposed RMP VRM Class Change (est. acres)	Difference from Existing RMP VRM (percent)
Proposed Action Transmission Line	Unclassified	-93,882	-	-	-
Proposed Action Transmission Line	Class II	-307	260,007	259,700	<-1
Proposed Action Transmission Line	Class IV	+94,190	334,755	428,945	+22
ES-1	Unclassified	-109	-	-	-
ES-1	Class IV	+109	334,755	334,864	<+1

Table Acronym(s): ES – Esmeralda Substation; Est. – Estimated; RMP – Resource Management Plan; VRM – Visual Resource Management

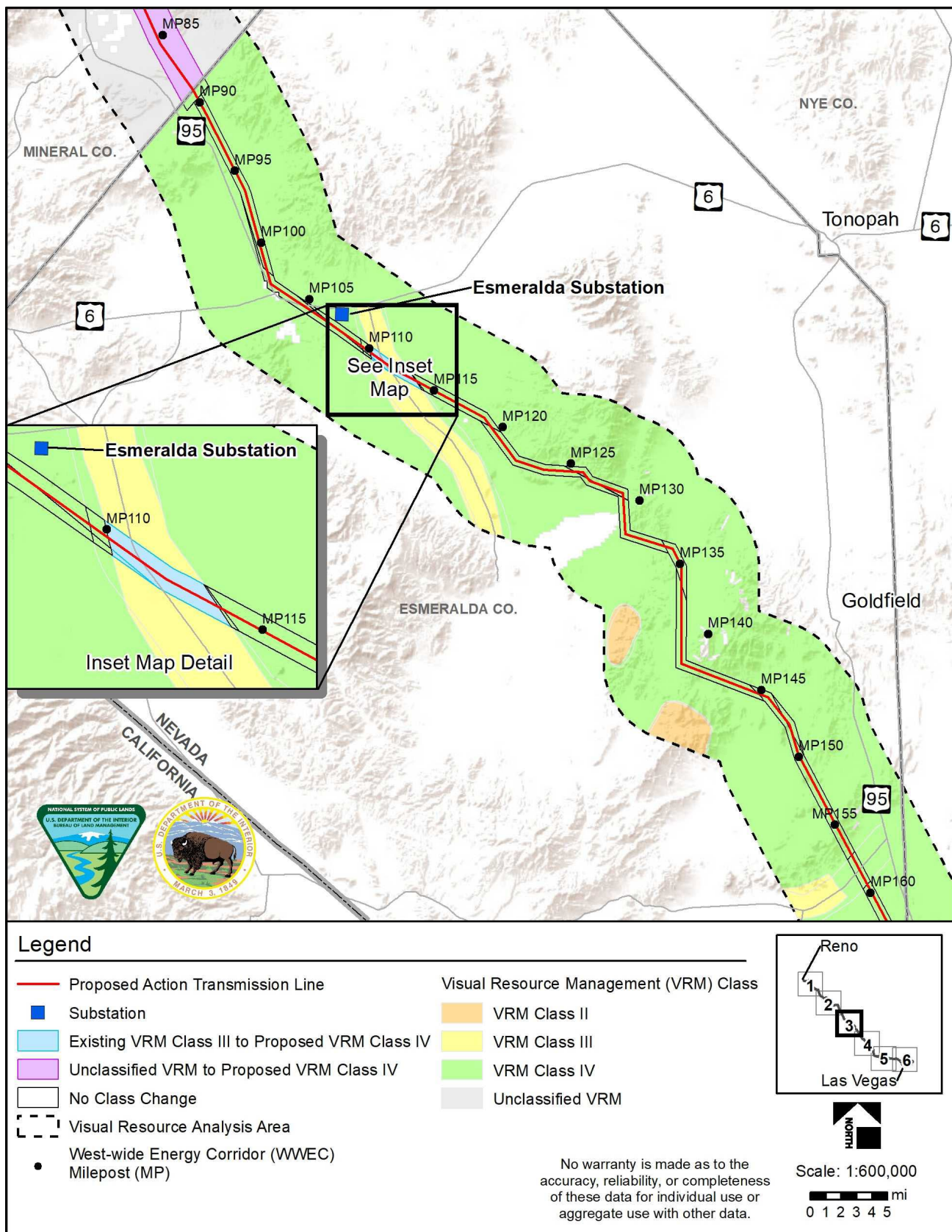
Table Source(s): BLM 2022 GIS Data



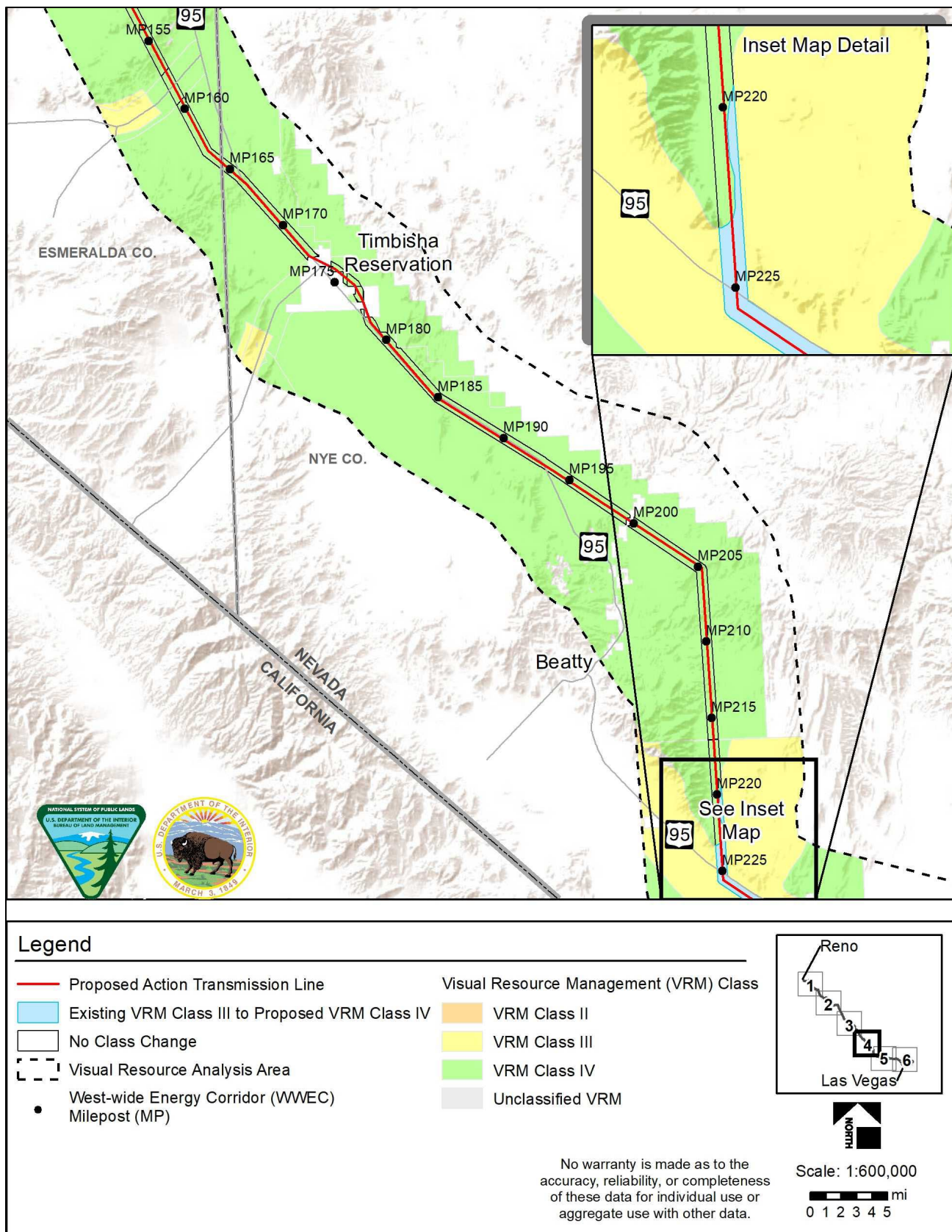
**Figure 4-12. Proposed Action Proposed VRM Amendments to Carson City Field Office Consolidated RMP**



**Figure 4-13. ES-1 and Proposed Action Proposed VRM Amendments to Carson City Field Office Consolidated RMP**

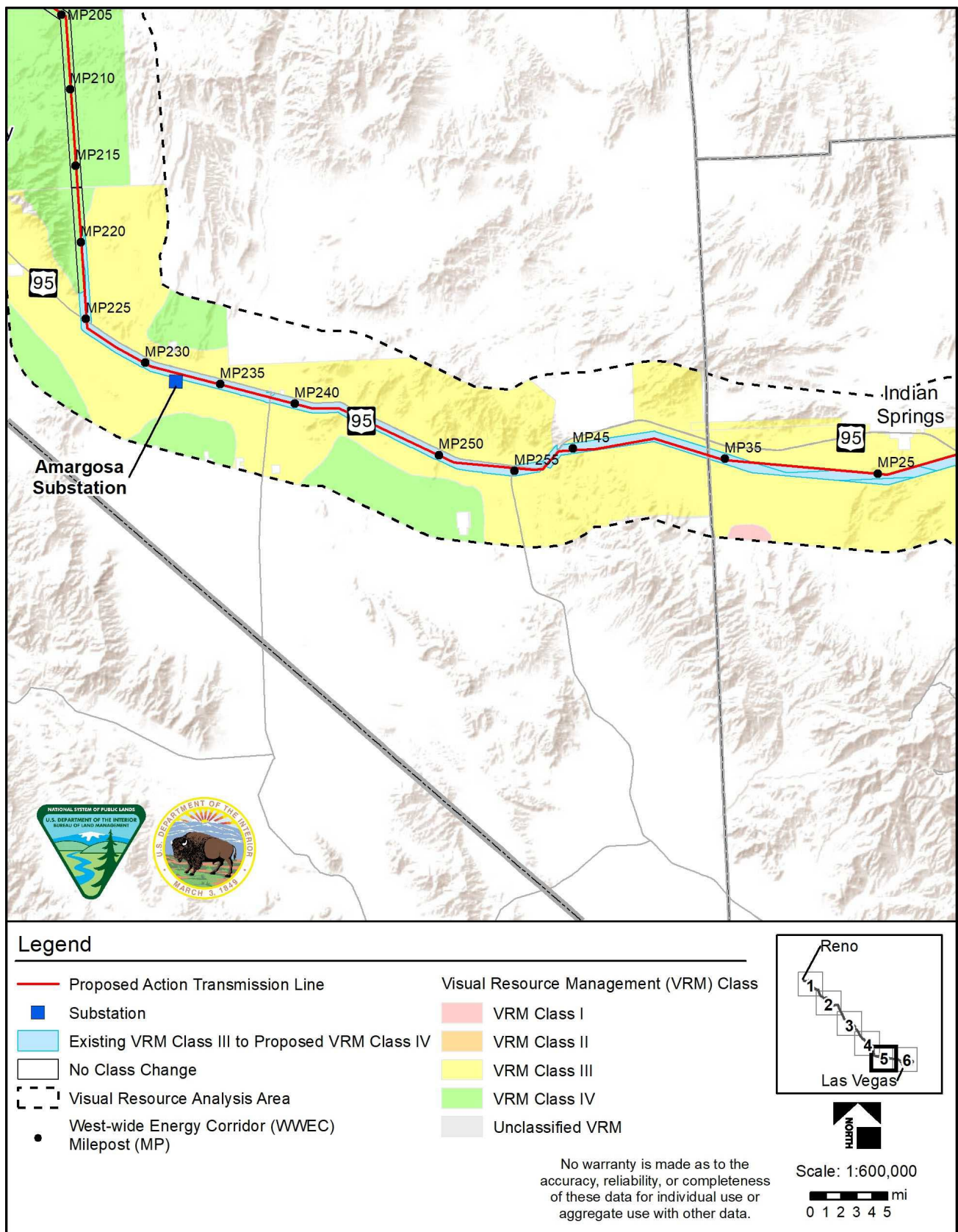


**Figure 4-14. ES-1, ES-2 (Proposed Action), and ES-3, and Proposed Action Proposed VRM Amendments to Carson City Field Office Consolidated and Tonopah RMPs**

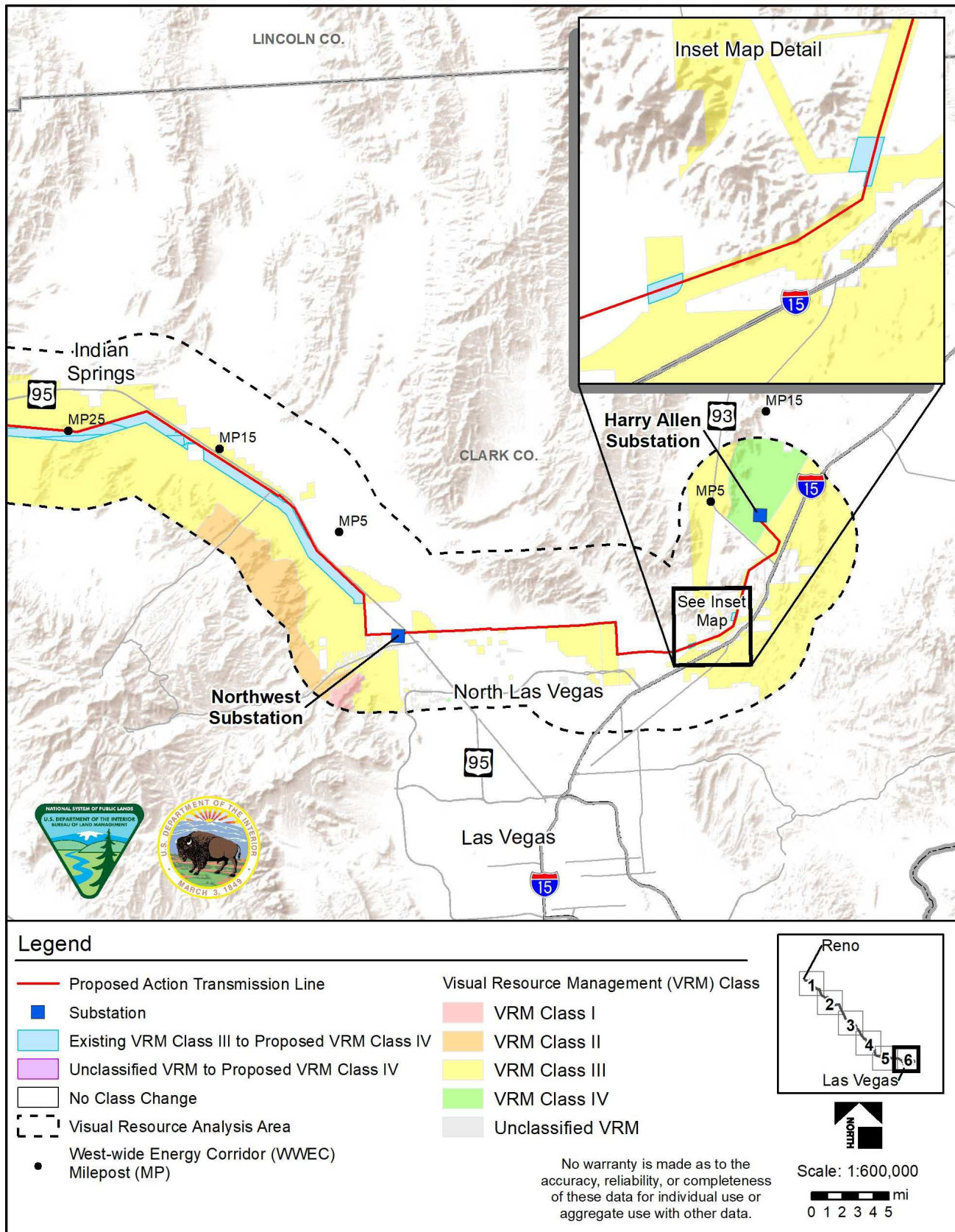


**Figure 4-15. AS-1 and Proposed Action Proposed VRM Amendments to Tonopah and Las Vegas RMPs**

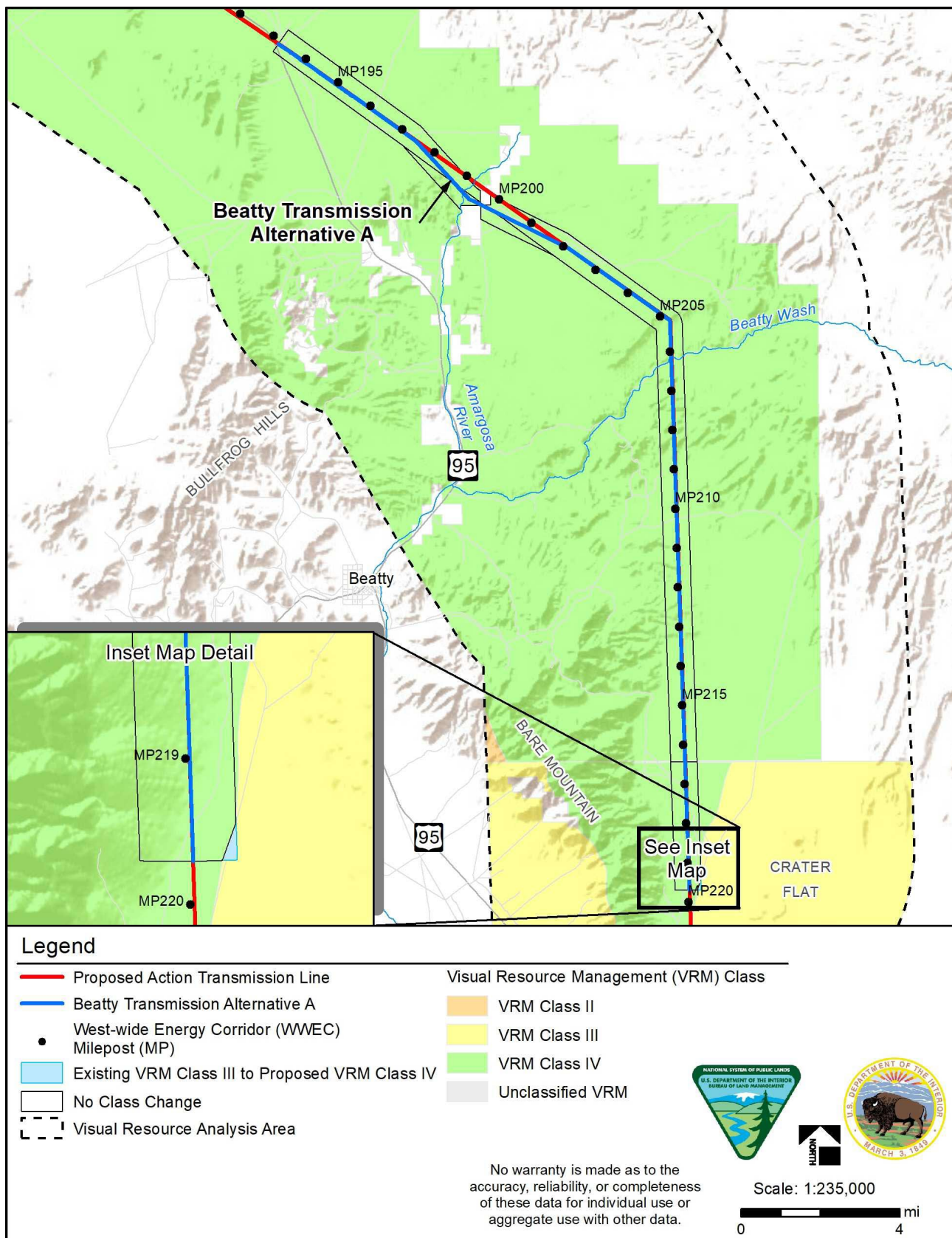




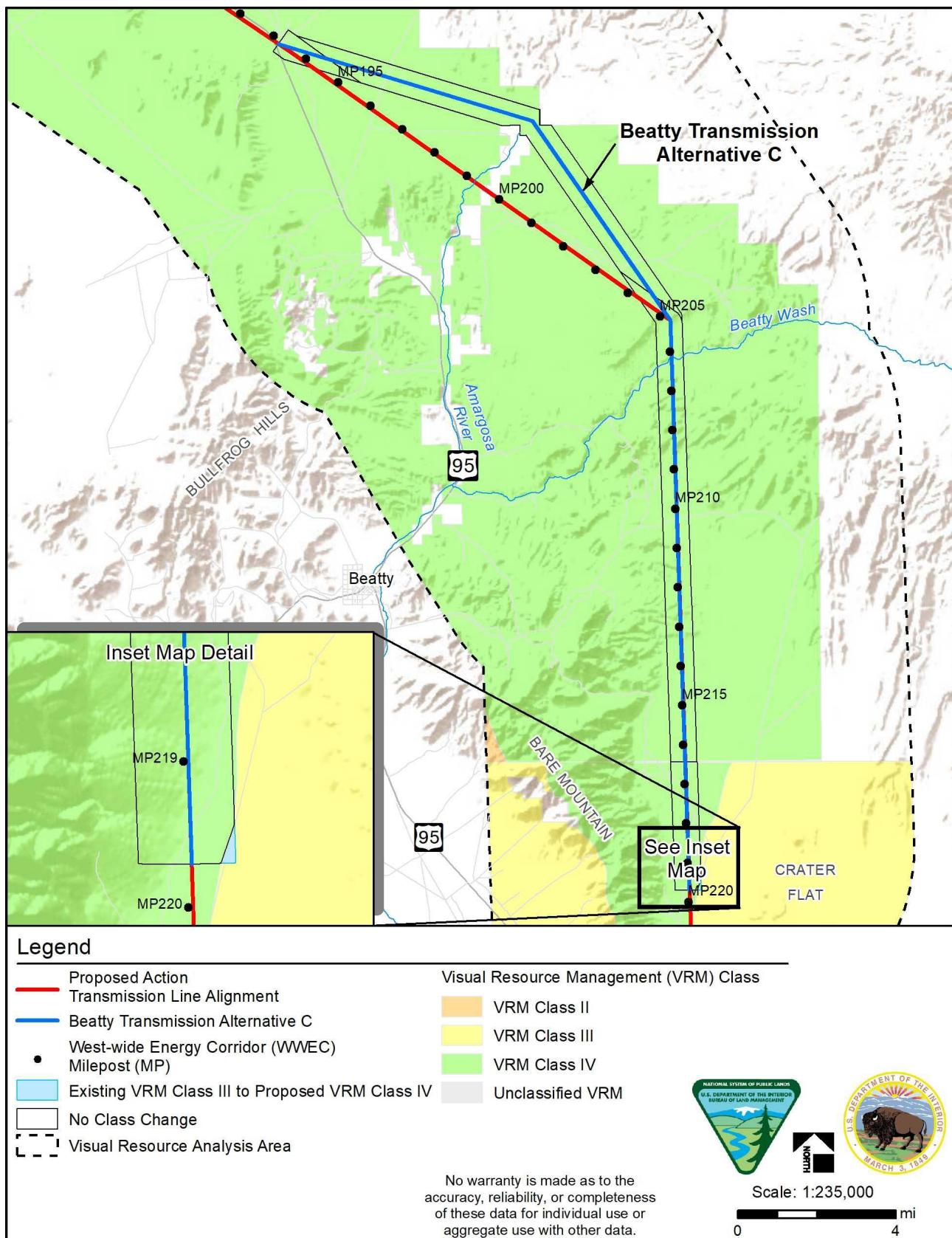
**Figure 4-16. AS-1, AS-2 (Proposed Action), and Proposed Action Proposed VRM Amendments to Tonopah and Las Vegas RMPs**



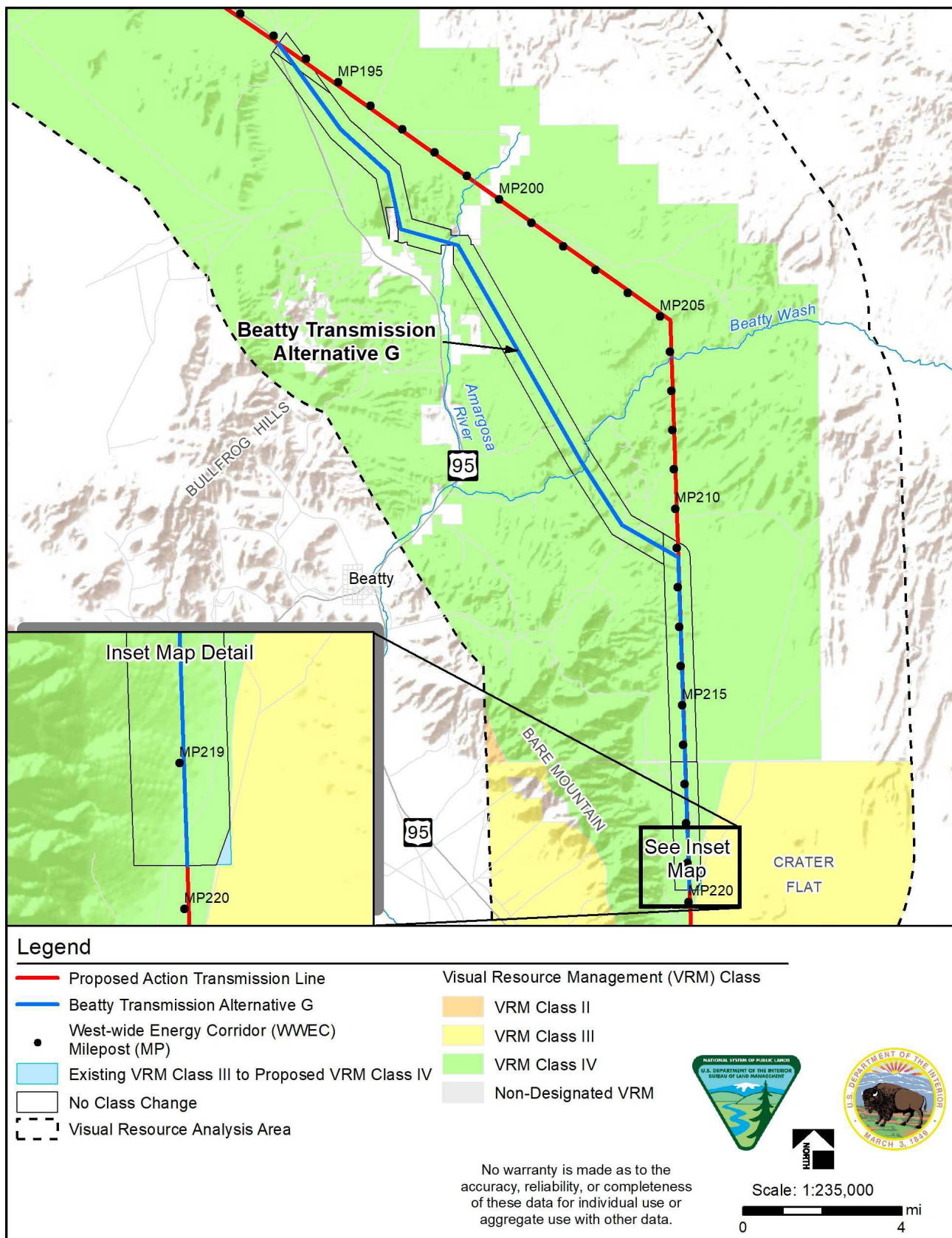
**Figure 4-17. Proposed Action Proposed VRM Amendments to Las Vegas RMP**



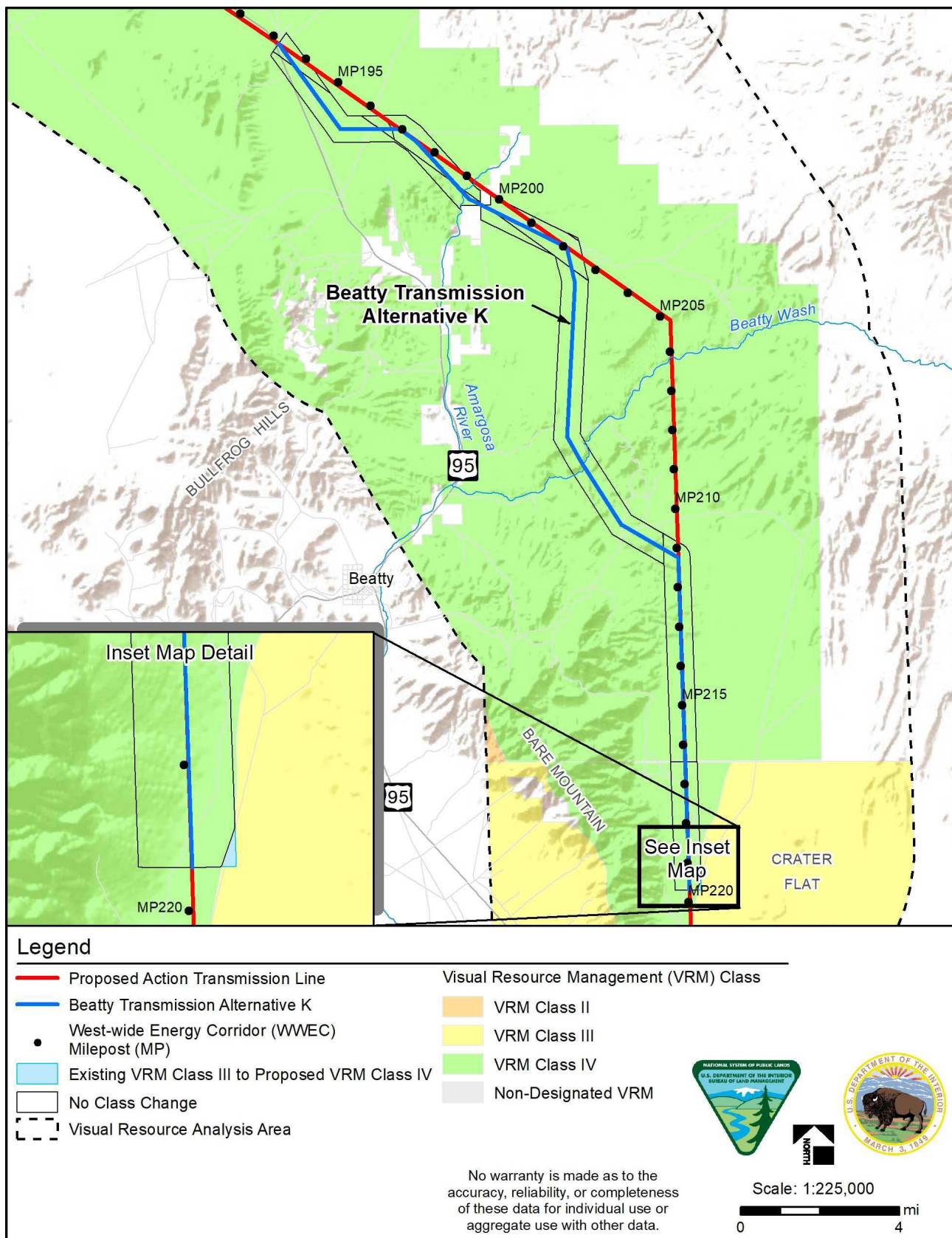
**Figure 4-18. Beatty Transmission Alternative A Proposed VRM Amendments to Tonopah and Las Vegas RMPs**



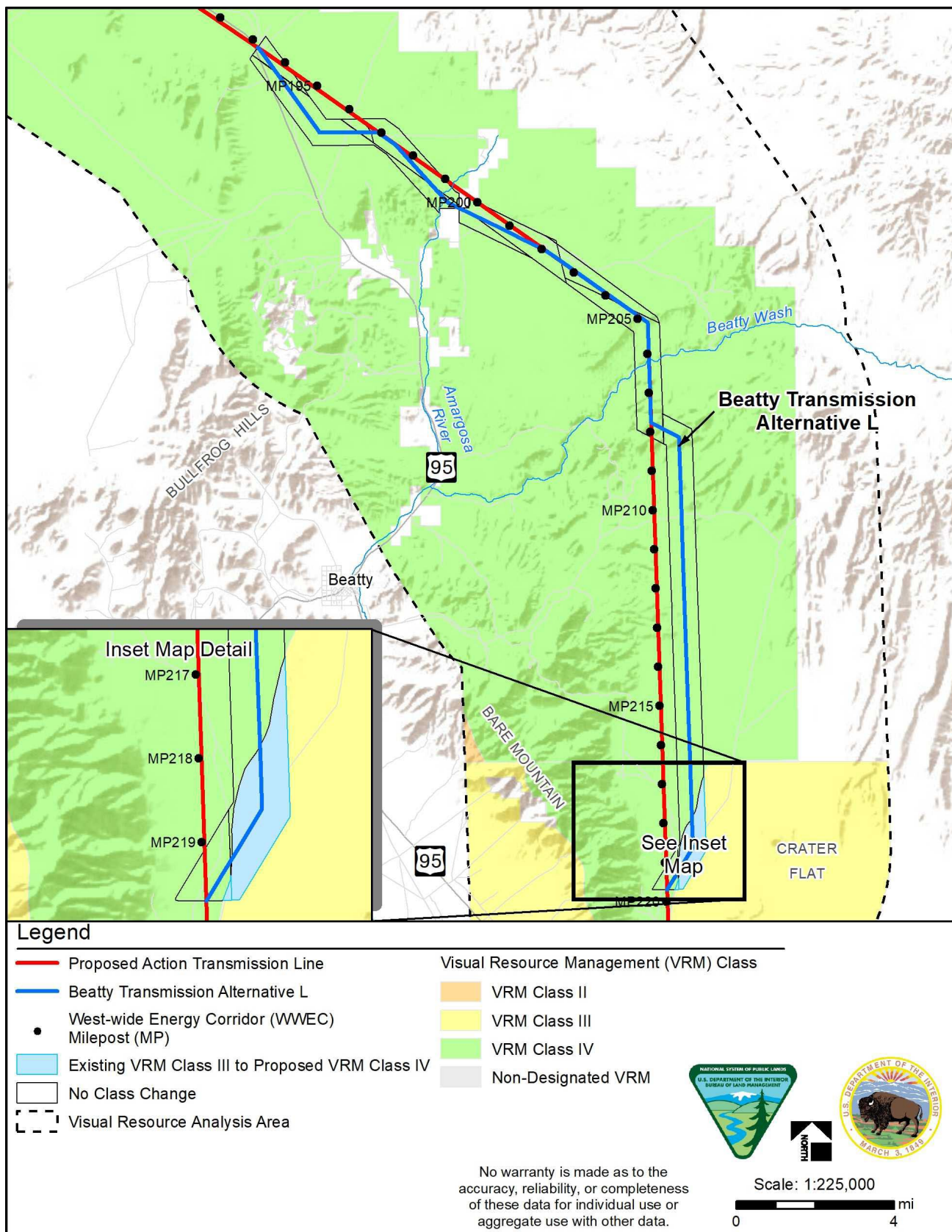
**Figure 4-19. Beatty Transmission Alternative C Proposed VRM Amendments to Tonopah and Las Vegas RMPs**



**Figure 4-20. Beatty Transmission Alternative G Proposed VRM Amendments to Tonopah and Las Vegas RMPs**



**Figure 4-21. Beatty Transmission Alternative K Proposed VRM Amendments to Tonopah and Las Vegas RMPs**



**Figure 4-22. Beatty Transmission Alternative L Proposed VRM Amendments to Tonopah and Las Vegas RMPs**

## 4.5 Direct and Indirect Effects from Potential RMP Amendments

The effects on the resources and resource uses from amending decisions in the land use plans to accommodate the GLWP would be similar to the direct and indirect effects of constructing, O&M, and decommissioning. When a ROW application is submitted to a BLM office for processing, one of the initial steps for the BLM is to evaluate whether the ROW application would be in conformance with the existing land use plan. The ROW application consistent with the existing land use plan would then be subject to environmental review under NEPA. A ROW application initially determined not in conformance with the existing land use plan could be rejected by the BLM, or the BLM could process the ROW application and evaluate the changes needed to the existing land use plan through the NEPA process. The types of impacts would vary by project type, project phase (e.g., construction, operation), and location. Direct and indirect effects of the GLWP have been described in the preceding resource sections. Table 4-5 describes the potential environmental impacts based on the amended designated WWEC and VRM classification resulting from the proposed RMP amendments. The WWEC Programmatic EIS assessed potential effects from the designation of the WWECs (BLM and DOE 2008a, 2008b). Where applicable, the analysis from the Programmatic EIS is incorporated by reference and included in the summary in Table 4-5 below.

**Table 4-5. Summary of Effects from RMP Amendments**

Resource	Potential Effects
Cultural Resources	Cultural resources located in WWECs would be subject to a potentially higher level of ground-disturbing activities, which would increase the likelihood of unanticipated surface and subsurface discoveries. In addition, utility corridors would be subject to a potentially higher level of visual intrusions from placement of structures and facilities, which would affect cultural resources where setting is an aspect of their integrity.
Native American Religious Concerns	Tribal resources could be impacted during project construction and there could be an increased potential for looting due to increased accessibility of sites from project ROWs through previously inaccessible locations.
Federally Listed Species, Special Status Species	Allowing for potential future development of utilities in areas where currently none exist could result in habitat loss, fragmentation, increased human disturbance, and direct wildlife mortalities. In addition, utility corridors would concentrate future utility development in these areas. Potential impacts from habitat loss would include the incremental loss of potential cover and forage and the incremental increase of habitat fragmentation from vegetation removal associated with surface-disturbance activities. On BLM-administered lands, surveys would be required prior to construction in potential or known habitats of threatened, endangered, or otherwise special status species. These surveys would help determine the presence of any federally listed or special status species or extent of habitat. Protective measures would generally be taken to avoid or minimize direct disturbance in these important areas before any potential future proposed projects are permitted.
Land Use and Realty	Recreation, livestock grazing, oil and gas leasing, and wildlife habitat conservation could experience short-term disturbance during construction activities. Some land areas would be converted to temporary or permanent access roads. Future project development and operation within the amended WWEC could limit mineral extraction directly within the GLWP ROW.
Special Designation Areas/National Historic Trails	Plan amendments to modify designated WWECs could affect management objectives for SDAs and NHTs. In addition, the modifications to the designated WWECs would concentrate future utility development in these areas. Establishing utility corridors in areas containing inventory units that are determined to meet criteria for LWC could lead to potential future development of utilities that could affect wilderness units and eliminate portions or the entirety of the unit from meeting wilderness criteria.



**Table 4-5. Summary of Effects from RMP Amendments  
(continued)**

<b>Resource</b>	<b>Potential Effects</b>
Paleontological Resources	Ground-disturbing construction activities may damage or destroy fossils and their scientific context within project-specific ROWs. Increased accessibility to an area may also expose fossils to vandalism or theft, the magnitude and extent of which would depend on the type, location, and design of the individual projects.
Socioeconomic Resources	Development of energy transport projects could result in beneficial impacts to local and state tax revenues, state employment rates, personal income, and the rental housing market. Land use royalties and property values may be affected within and near project ROWs. Direct and indirect socioeconomic impacts to BLM-administered lands are expected to be minimal as a result of the plan amendment. Impacts to population, housing, and community services would be greatest during construction because new populations would temporarily relocate for work. The construction of additional transmission lines within the amended WWECs could facilitate the development of renewable energy and other energy generation projects throughout Nevada.
Visual Resources	<p>Plan amendments that modify an existing corridor and lower VRM classification in an area that is predominantly a natural landscape would impact visual resources on federal and non-federal lands within and adjacent to areas within the viewshed. Potential visual impacts would be associated with access roads, construction equipment and activity, cleared project ROWs, and the type and visibility of individual project structures and facilities. Allowing for the potential future development of utilities in areas not previously developed could result in the long-term addition of overhead transmission structures and other infrastructure facilities in predominantly natural landscapes that provide settings for recreation and other uses. In addition, as is the intent of the WWEC, the utility corridors would concentrate future utility development in these areas. The concentration of utility development would alter predominantly natural landscape settings to landscapes that could eventually trend toward a more industrialized-like setting.</p> <p>Amending a portion of the VRM Class designation from the existing VRM Class II and Class III to VRM Class IV would allow changes to the characteristic landscape to increase from needing to retain landscape character to accepting major modification of the landscape character. Management activities that, under the existing VRM Class, should not attract attention or could attract attention but not dominate the view would be allowed to dominate the view and be a major focus of viewer attention. The change of current planning direction would result in, but not be limited to, the allowance of the GLWP.</p>

*Table Acronym(s):* BLM – Bureau of Land Management; GLWP – Greenlink West Transmission Project; LWC – Lands with Wilderness Characteristics; NHT – National Historic Trail; RMP – Resource Management Plan; ROW – Right-of-way; SDA – Special Designation Area; VRM – Visual Resource Management; WWEC – West-wide Energy Corridor

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## **CHAPTER 5. CONSULTATION AND COORDINATION**

### **5.1 Introduction**

In addition to the planning, analysis, and review activities performed in preparation for this Final EIS/Proposed RMPA, the BLM has conducted consultation, coordination, and public participation efforts. These efforts began with public input workshops prior to the start of the official NEPA process (i.e., publishing of the NOI), continued with public scoping after the start of NEPA, a public comment period for the Draft EIS/RMPA, and will continue throughout the EIS process. The purpose of the consultation and coordination program is to encourage interaction between the BLM and other federal, state, and local agencies; Native American Tribes; and the public. The BLM's role is to inform the public about the GLWP and seek input to assist in analysis and decision-making. The BLM has made formal and informal efforts to involve, consult with, and coordinate with these entities to ensure that the most appropriate data has been gathered and analyzed and that agency policy and public sentiment and values are considered and incorporated, as appropriate.

### **5.2 Consultation and Coordination**

Agencies and organizations that have jurisdiction and/or special expertise in the GLWP were contacted prior to scoping, at the start of scoping, during resource inventory, and before the publication of the Draft EIS/RMPA and Final EIS/Proposed RMPA. This section describes the consultation and coordination activities with agencies, Tribes, stakeholders, and the public that occurred throughout the EIS process, including the scoping process and public review of the Draft EIS/RMPA.

#### **5.2.1 Cooperating Agencies**

The BLM is the lead federal agency responsible for the preparation of this Final EIS/Proposed RMPA under NEPA. The BLM has decision-making authority to permit construction on affected BLM-administered lands. The federal, state, and local agencies are identified in Chapter 1.

#### **5.2.2 Section 7 of the Endangered Species Act**

Section 7 of the ESA requires federal agencies to ensure that their actions do not jeopardize the continued existence of threatened or endangered species or result in the destruction of designated critical habitat. It also requires consultation with the USFWS if an action may affect listed species. The BLM invited the USFWS to participate as a Cooperating Agency on April 1, 2021. Since then, BLM has met with the USFWS on an ongoing basis to identify ESA-listed species and other sensitive biological resources. The USFWS provided comments and recommendations on the Administrative and Draft GLWP EIS/RMPA on specific species to evaluate for potential effects as well as suggested measures to avoid and/or minimize impacts.

As part of formal and informal consultation under Section 7 of the ESA, the BLM submitted an initial BA on July 6, 2023, to the USFWS to address species with the potential to occur in the area of the BLM Preferred Alternative for the GLWP. The USFWS requested that additional species be addressed in the BA and the BLM submitted a revised BA on February 6, 2024, when formal consultation under Section 7 of the ESA with the USFWS was initiated. Consultation was initiated then amended in February 2024 for the threatened Ash Meadows blazingstar, the threatened Ash Meadows sunray, the threatened Ash Meadows ivesia, the threatened Ash Meadows milkvetch, the proposed threatened Bi-State sage-grouse, the threatened Mojave desert tortoise, the endangered southwestern willow flycatcher, the threatened

spring-loving centaur, and the threatened yellow-billed cuckoo. The USFWS has completed formal and informal ESA Section 7 consultation with the BLM in the Biological Opinion (reference number 2024-0070122), which is provided on the BLM National NEPA Register website.

### **5.2.3 Section 106 of the National Historic Preservation Act**

The BLM is required to prepare an EIS in coordination with studies or analyses required by the NHPA, as amended (54 USC 300101 et seq.). In accordance with Section 106, federal agencies are required to consider the effects of the agencies' undertakings on historic properties listed in, or eligible for listing in, the NRHP. The regulations also specify the need for meaningful consultation with SHPOs, THPOs, Native American Tribes, and other interested parties during all phases of Section 106 compliance. Pursuant to 36 CFR Part 800 and as the lead federal agency for the undertaking, the BLM has initiated Section 106 consultation and participated in ongoing consultation throughout the project. Consultation was conducted under the NHPA Substitution regulations located at 36 CFR 800.8(c). The Section 106 consultation letters and meeting materials are included in Appendix V and additional details about how the BLM has met its obligations under the 36 CFR 800.8(c) process can be found in Section 3.6 Cultural Resources.

### **5.2.4 Government-to-Government Consultation**

The US has an important legal relationship with Native American Tribes, as established by the US Constitution, treaties, EOs, federal statutes, and federal and Tribal policies. As sovereign nations, Native American Tribes have legal rights and benefits with respect to their relationships with the US government. This relationship is founded on the US government's trust responsibilities to safeguard Tribal sovereignty and self-determination as well as Tribal lands, assets, and resources reserved by treaty and other federally recognized rights. Statutes and regulations require federal agencies to consult with Native American Tribes on a government-to-government basis on federal actions or undertakings that may affect "trust assets," including cultural and natural resources of Tribal concern. Government-to-government consultation involves the process of seeking, discussing, and considering Tribes' views on policies, undertakings, and decisions, such as environmental review of the proposed GLWP. The venue for government-to-government consultation for the GLWP has followed the established form of contact preferred by each Tribe. Consultation has generally involved formal letters and submission of material via US Postal Service Certified Mail with follow-up telephone contact and a series of meetings.

In May 2021 and February 2022, the BLM formally initiated consultation with Native American Tribes that had previously expressed claims to cultural affiliation with the GLWP area to inform them of the project and to inquire about their interest in continuing government-to-government consultation (Table 5-1). Three formal government-to-government virtual meetings with BLM Nevada State Director Jon K. Raby were conducted on March 24, 2022, with representatives from 12 Tribes; on May 23, 2023, with representatives from 7 Tribes; and on January 19, 2024, with representatives from 8 Tribes. The BLM will continue to consult and coordinate with the Tribes listed in Table 5-1 and any additional Native American Tribes who request government-to-government consultation for the GLWP.

### **5.2.5 Other Tribal Coordination**

The Native American Tribes most actively involved in the GLWP include the Duckwater Shoshone Tribe, Walker River Paiute Tribe, Timbisha Shoshone Tribe, and Moapa Band of Paiutes. The Hopi Tribe, Kaibab Band of Paiute Indians, Reno-Sparks Indian Colony, and the Washoe Tribe of Nevada and California have also expressed interest in the GLWP and requested consultation on the cultural resources Class III

inventory reports. The BLM also coordinated with Tribal monitors for archaeological fieldwork and facilitated field visits to archaeological sites with Tribes. See the Section 3.6 Cultural Resources for more information about Tribal consultation and coordination under Section 106.

In June 2021, the BLM invited Native American Tribes and other stakeholders to a series of public input workshops on the GLWP. The Duckwater Shoshone THPO (and former Chairman) attended a public input workshop in North Las Vegas. In August 2021, the BLM emailed the Moapa Band of Paiutes, the Las Vegas Paiute, the Walker River Paiute, and the Duckwater Shoshone to offer project presentations to the Tribes to introduce the GLWP and the NEPA process. A meeting was held virtually with the Las Vegas Paiute Tribe in August 2021. In October 2021, the BLM hosted a virtual project presentation meeting for members of the Walker River Paiute Tribal Council and Tribal staff. A virtual meeting was also held in October 2021 with the Duckwater Shoshone. The BLM presented to the Timbisha Shoshone Tribal Council in June 2022 and July 2023 and to the Walker River Paiute Tribal Council in June 2022. In August 2023, the BLM hosted a virtual Tribal listening session to provide the Tribes an opportunity to ask questions and provide comments about the GLWP. These input workshops, individual Tribal virtual meetings, and listening sessions were not considered formal government-to-government consultation and were not conducted for the purposes of Section 106 consultation. Rather, they were information sharing and gathering sessions to provide an opportunity for Native American Tribes to ask questions or provide feedback about the GLWP.

### **5.3 Public Input Workshops**

The BLM determined that local community outreach prior to the publishing of the NOI would provide opportunities for the public to learn about the proposed GLWP and to ask the BLM and the Proponent questions early in the planning process. A series of in-person and virtual public input workshops were held in June 2021, November 2021, and February 2022. The workshop format was designed to promote informal conversations about the GLWP and encourage the public to have their concerns considered prior to the EIS scoping comment period. In-person and virtual public input workshops were held during this time.

Notice of the public input workshops was accomplished through publishing in four local newspapers, posting of flyers in various locations within the respective communities, and a BLM social media campaign. Table 5-2 lists the locations where the public input workshop flyers were posted in the weeks leading up to the workshops.

In total, 151 people signed in at the input workshops. Many of the participants expressed concerns regarding potential impacts to the TUSK, the Mojave desert tortoise and other sensitive species, socioeconomic impacts to rural communities (specifically Beatty), NHTs, and impacts to scenic/visual quality. Additional concerns were related to the amount of public lands with current renewable energy applications and the effect that the GLWP would have on supporting those developments.

**Table 5-1. Summary of Government-to-Government Consultation**

<b>Native American Tribes</b>	<b>May 2021 Consultation Letters Sent</b>	<b>February 2022 Consultation Letters Sent</b>	<b>Attended March 2022 Consultation Meeting</b>	<b>May 2023 Consultation Letters Sent</b>	<b>Attended May 2023 Consultation Meeting</b>	<b>Attended January 2024 Consultation Meeting</b>
Big Pine Paiute Tribe	No	Yes	No	Yes	No	No
Bishop Paiute Tribe	Yes	Yes	Yes	Yes	No	No
Bridgeport Indian Colony	No	Yes	No	Yes	No	No
Burns Paiute Tribe	No	Yes	No	Yes	No	No
Chemehuevi Indian Tribe	Yes	Yes	Yes	Yes	Yes	Yes
Colorado River Indian Tribes	Yes	Yes	No	Yes	No	No
Confederated Tribes of Warm Springs	No	Yes	No	Yes	No	No
Duckwater Shoshone Tribe	No	Yes	No	Yes	Yes	No
Fort Independence Indian Community	No	Yes	No	Yes	No	No
Fort McDermitt Paiute and Shoshone Tribes	No	Yes	No	Yes	No	Yes
Fort Mojave Indian Tribe	Yes	Yes	No	Yes	No	No
Hualapai Tribe	No	Yes	Yes	Yes	No	No
Havasupai Tribe	No	Yes	No	Yes	No	No
Hopi Tribe	No	Yes	No	Yes	No	No
Hualapai Indian Tribe	No	Yes	No	Yes	No	No
Kaibab Band of Paiute Indians	Yes	Yes	Yes	Yes	No	No
Las Vegas Paiute Tribe	Yes	Yes	Yes	Yes	Yes	No
Lone Pine Paiute Shoshone Tribe	No	Yes	No	Yes	No	No
Lovelock Paiute Tribe	No	Yes	Yes	Yes	No	No
Moapa Band of Paiute Indians	Yes	Yes	Yes	Yes	No	Yes
Paiute Indian Tribe of Utah	Yes	Yes	Yes	Yes	No	No
Fallon Paiute-Shoshone Tribe	Yes	Yes	Yes	Yes	No	No
Pyramid Lake Paiute Tribe	Yes	Yes	Yes	Yes	Yes	No
Reno-Sparks Indian Colony	Yes	Yes	No	Yes	Yes	Yes
San Juan Southern Paiute Tribe of Arizona	Yes	Yes	No	Yes	No	No

**Table 5-1. Summary of Government-to-Government Consultation  
(continued)**

<b>Native American Tribes</b>	<b>May 2021 Consultation Letters Sent</b>	<b>February 2022 Consultation Letters Sent</b>	<b>Attended March 2022 Consultation Meeting</b>	<b>May 2023 Consultation Letters Sent</b>	<b>Attended May 2023 Consultation Meeting</b>	<b>Attended January 2024 Consultation Meeting</b>
Shoshone-Paiute Tribes of the Duck Valley Indian Reservation	No	Yes	No	Yes	No	No
Summit Lake Paiute Tribe	No	Yes	No	Yes	No	No
Timbisha Shoshone Tribe	Yes	Yes	Yes	Yes	No	Yes
Twenty-Nine Palms Band of Mission Indians	Yes	Yes	No	Yes	No	Yes
Utu Utu Gwaitu Paiute Tribe	No	Yes	No	Yes	No	No
Walker River Paiute Tribe	Yes	Yes	Yes	Yes	Yes	Yes
Washoe Tribe of Nevada and California	Yes	Yes	No	Yes	Yes	Yes
Winnemucca Indian Colony	No	Yes	No	Yes	No	No
Yerington Paiute Tribe	Yes	Yes	No	Yes	No	No
Yomba Shoshone Tribe	Yes	Yes	No	Yes	No	No

**Table 5-2. Public Input Workshop Flyer Posting Locations**

Location	City/Town	Address
Beatty Post Office	Beatty	600 E Hwy 95 N, Beatty, NV 89003
Gabbs Post Office	Gabbs	101 4th St., Gabbs, NV 89409
Hawthorne Post Office	Hawthorne	701 6th St., Hawthorne, NV 89415
Indian Springs Post Office	Indian Springs	185 N Hwy 95, Indian Springs, NV 89018
Luning Post Office	Luning	202 Plymire St., Luning, NV 89420
Meadow Mesa Station Post Office	North Las Vegas	4904 Camino Al Norte, North Las Vegas, NV 89031
Mina Luning Branch Library	Mina	908 B St., Mina, NV 89422
Mina Post Office	Mina	215 8th St., Mina, NV 89422
Mineral County Public Library	Hawthorne	110 W 1st St., Hawthorne, NV 89415
Raley's Grocery	Yerington	176 W Goldfield Ave., Yerington, NV 89447
Safeway Grocery	Hawthorne	1095 US Hwy 95, Hawthorne, NV 89415
Tonopah Convention Center	Tonopah	301 Brougner Ave., Tonopah, NV 89049
Raley's Grocery	Yerington	176 W Goldfield Ave., Yerington, NV 89447
Silver Peak Post Office	Silver Peak	350 Main St., Silver Peak, NV 89047
Yerington Post Office	Yerington	26 N Main St., Yerington, NV 89447
Yerington Post Office	Yerington	811 N Main St., Yerington, NV 89447

#### 5.4 Scoping Process

The Proponent submitted its initial ROW application to the BLM on July 22, 2020. On May 2, 2022, the BLM published a NOI to prepare the EIS in the *Federal Register*, which also started the scoping process. Scoping notifications were sent to 298 individuals, organizations, agency representatives, Native American Tribes, and posted on the BLM National NEPA Register website. Newspaper advertisements were placed in the *Las Vegas Review Journal*, *El Tiempo*, *Pahrump Valley Times*, *Tonopah Times-Bonanza Goldfield News*, *Reno Gazette Journal*, *El Mundo*, and *Mineral County Independent News*. In addition, scoping flyers were placed in public locations in North Las Vegas, Beatty, Tonopah, Hawthorne, Yerington, and Reno and at post offices listed in Table 5-3. Email notices were also sent to participants from the public input workshops who provided contact information.

The scoping comment period was held from May 2, 2022, through June 2, 2022. In-person public scoping meetings were held in North Las Vegas on April 13, 2022; Beatty on April 14, 2022; Tonopah on April 15, 2022; and Reno on April 20, 2022. A total of 31 people signed in at the Las Vegas meeting, 42 at the Beatty meeting, 7 at the Tonopah meeting, and 17 at the Reno meeting. Many of the comments were similar to the input received during the earlier public workshops.

**Table 5-3. Public Scoping Meeting Flyer Posting Locations**

Location	City	Address
Beatty Post Office	Beatty	600 E Highway 95 North, Beatty, NV 89003
Beatty Town Office	Beatty	100 A Avenue S, Beatty, NV 89003
Gabbs Post Office	Gabbs	101 4th Street, Gabbs, NV 89409
Goldfield Post Office	Goldfield	400 S 4th Street, Goldfield, NV 89013
Hawthorne Post Office	Hawthorne	701 6th Street, Hawthorne, NV 89415
Safeway Grocery	Hawthorne	1095 US Highway 95, Hawthorne, NV 89415
Indian Springs Post Office	Indian Springs	185 N Highway 95, Indian Springs, NV 89018
Luning Post Office	Luning	202 Plymire Street, Luning, NV 89420
Mina Luning Branch Library	Mina	908 B Street, Mina, NV 89422



**Table 5-3. Public Scoping Meeting Flyer Posting Locations  
(continued)**

<b>Location</b>	<b>City</b>	<b>Address</b>
Mina Post Office	Mina	215 8th Street., Mina, NV 89422
Mineral County Public Library	Hawthorne	110 W 1st Street, Hawthorne, NV 89415
Las Vegas Post Office	Las Vegas	6210 N Jones Boulevard, Las Vegas, NV 89130
North Las Vegas Post Office	North Las Vegas	4904 Camino Al Norte, North Las Vegas, NV 8903
Neil Road Recreation Center	Reno	3925 Neil Road, Reno, NV 89505
Raley's Grocery	Yerington	176 W Goldfield Avenue, Yerington, NV 89447
Silver Peak Post Office	Silver Peak	350 Main Street, Silver Peak, NV 89047
Tonopah Post Office	Tonopah	201 Erie Main, Tonopah, NV 89049
Tonopah Station	Tonopah	1137 Erie Street, Tonopah, NV 89049
Yerington Post Office	Yerington	26 N Main Street, Yerington, NV 89447
Yerington Post Office	Yerington	811 N Main Street, Yerington, NV 89447

### 5.5 Public Comment on the Draft EIS/RMPA

The Draft EIS/RMPA was posted to the BLM National NEPA Register website on May 26, 2023, and was available for public and agency review and comment. During the 90-day comment period for the Draft EIS/RMPA, the BLM held in-person public meetings on July 11, 12, and 23, 2023, as well as virtual meetings on June 15 and August 2, 2023, to accept comments on the Draft EIS/RMPA. Newspaper advertisements were placed in the *Las Vegas Review Journal*, *El Tiempo*, *Pahrump Valley Times*, *Reno Gazette Journal*, *El Mundo*, and *Mineral County Independent News*. In addition, scoping flyers were placed in public locations in North Las Vegas, Beatty, Tonopah, Hawthorne, Yerington, and Reno, and at post offices listed in Table 5-4. Email notices were also sent to participants from the public input workshops and the public scoping meetings who provided their contact information. Comments received on the Draft EIS/RMPA and from the public meetings have been compiled and responses have been provided in Appendix Z.

**Table 5-4. Public Comment Meeting Flyer Posting Locations**

<b>Location</b>	<b>City/Town</b>	<b>Address</b>
Beatty Post Office	Beatty	600 E Highway 95 N, Beatty, NV 89003
Beatty Town Office	Beatty	100 A Avenue S, Beatty, NV 89003
Gabbs Post Office	Gabbs	101 4th Street, Gabbs, NV 89409
Goldfield Post Office	Goldfield	400 S 4th Street, Goldfield, NV 89013
Hawthorne Post Office	Hawthorne	701 6th Street, Hawthorne, NV 89415
Indian Springs Post Office	Indian Springs	185 N Highway 95, Indian Springs, NV 89018
Luning Post Office	Luning	202 Plymire Street, Luning, NV 89420
Mina Post Office	Mina	215 8th Street, Mina, NV 89422
Mineral County Public Library	Hawthorne	110 W 1st Street, Hawthorne, NV 89415
Las Vegas Post Office	Las Vegas	6210 N Jones Boulevard, Las Vegas, NV 89130
North Las Vegas Post Office	North Las Vegas	4904 Camino Al Norte, North Las Vegas, NV 89031
McKinley Arts & Culture Center	Reno	925 Riverside Drive, Reno, NV 89503
Silver Peak Post Office	Silver Peak	350 Main Street, Silver Peak, NV 89047
Tonopah Post Office	Tonopah	201 Erie Main, Tonopah, NV 89049
Yerington Post Office	Yerington	26 N Main Street Yerington, NV 89447
Yerington Post Office	Yerington	811 N Main Street Yerington, NV 89447

## **5.6 Public Release of the Final EIS/Proposed RMPA**

The public release of the Final EIS/Proposed RMPA will be followed by a 30-day public protest period and 60-day Governor's Consistency Review before the BLM may issue the ROD. The Final EIS/Proposed RMP Amendments is posted to the BLM National NEPA Register website and the *Federal Register*.

## **5.7 Preparers and Contributors**

The following individuals from the BLM and the third-party contractor team were responsible for preparing the Final EIS/Proposed RMPA.

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